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IDENTIFICATION AND EVALUATION OF METHODS FOR TEACHING SEVERELY MENTALLY RETARDED (TRAINABLE) CHILDREN.

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THE OBJECTIVES OF THIS STUDY WERE TO--(1) IDENTIFY, DESCRIBE, AND CATEGORIZE SPECIFIC METHODS BEING UTILIZED BY TEACHERS OF "TRAINABLE" CHILDREN IN TENNESSEE, (2) IDENTIFY TEACHERS USING THE VARIOUS TECHNIQUES, (3) DEVELOP A PRELIMINARY RATING SCALE OF TEACHER COMPETENCY, (4) DETERMINE IF A RELATIONSHIP EXISTS BETWEEN METHODS BEING USED AND OTHER RELEVANT VARIABLES, AND (5) ESTABLISH HYPOTHESES FOR CONTROLLED RESEARCH ON TEACHING METHODOLOGY. THE PROCEDURES USED IN TEACHING "TRAINABLE" CHILDREN WERE IDENTIFIED AND CATEGORIZED THROUGH TYPE AND OBSERVATION RECORDINGS. A CLUSTER ANALYSIS SUGGESTED SEVEN PROBLEM AREAS IN TEACHING TRAINABLE CHILDREN--(1) INDIVIDUAL AND GROUP CONTROL, (2) MOTIVATING THE CHILDREN TO START AND CONTINUE WORKING, (3) BUILDING UP A SENSE OF PERSONAL WORTH IN THE CHILDREN, (4) STRUCTURING OR GUIDING THE LEARNING, (5) ENCOURAGING COOPERATIVE INTERPERSONAL INTERACTION, (6) PROVIDING FOR A MIND-SET OR ATTENTION, AND (7) DRAWING "FROM" THE CHILDREN (AS OPPOSED TO "POURING IN"). THE PATTERNING OF TEACHING TECHNIQUES NEEDS MORE STUDY. PROBLEM AREAS IN TEACHING SHOULD BE FURTHER CLARIFIED, INCLUDING STUDY OF THE APPLICABILITY OF THE SEVEN CLUSTERS DEFINED IN THIS STUDY TO OTHER TYPES OF CLASSES. FURTHER INVESTIGATION IS NEEDED TO DISCOVER WHICH TEACHING TECHNIQUES WOULD PRODUCE THE BEST RESULTS IN EACH OF THE PROBLEM AREAS. (GC)

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IDENTIFICATION AND EVALUATION OF METHODS FOR TEACHING SEVERELY MENTALLY RETARDED (TRAINABLE) CHILDREN

February 15, 1957 - December 15, 1958

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PEABODY COLLEGE RESEARCH SERIES IN MENTAL RETARDATION

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A new frontier for public education has opened with the rapid growth all over the country of public day school classes for severely retarded (trainable) children (I.Q. 30 - 50). Educators are working for the first time with a group of children for whom little previous study has been made of teaching goals, curriculum, or methods. Teaching has had to proceed on a trial and error basis. The few studies which have been reported were general, evaluative studies of the effectiveness of these programs and were too global to provide much help in how or what to teach. The present study was initiated because more detailed information was needed about the dynamics involved in teaching techniques and program development with these trainable children.

This study was purely exploratory and descriptive. It was intended as a first step for more detailed, controlled research. There were many limitations, some of which have been pointed out specifically in the last section of this report. One of the greatest problems involved the lack of external criteria of teaching effectiveness, such as measures of pupil growth. Generalizations from the data presented should be limited until controlled studies have further explored and tested the findings.

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Katherine Orr, teacher of educable retarded children in Nashville, and Erma Alexander, first grade teacher at Peabody Demonstration School, who served as consultants in giving a teacher's point of view.

Special gratitude is due to Raymond Norris who also acted as statistical consultant.

REVIEW OF THE LITERATURE

A review of the literature revealed no studies on classroom teaching methods with trainable children, although Goldberg (16) estimated that in 1956-57 22,000 such children were in special classes, public or private in the United States. The only approach to the problem of what to teach has been through publication of courses of study and curriculum guides developed at local and state levels by teachers and supervisors (7, 9, 13, 22, 24, 29, 32, 33, 37). In these program guides, there seems to be a general agreement on what types of lessons to include in the curriculum, largely revolving around self-care and socialization. However, Boggs (6), in a survey of classes for trainable children, felt that there was some evidence of varying program emphases in classes sponsored by parent groups, public schools, and private schools. Therefore, there is a possibility that program activities which were useful in one school or community situation would not necessarily be suitable for another. The question arises as to whether differing age and ability levels, types of handicap, or behavioral syndromes in the children might not indicate a need for varying program or lesson emphases also. Perhaps these factors and others, such as homogeneous grouping or size of class would made a difference in the specific lessons taught and the amount of emphasis given to them.

In the last analysis, it is the classroom teacher who has the responsibility for adapting the program to fit the needs of her individual children. It would seem, then, that any classroom program could only be as effective as the teachers who were involved. Teaching effectiveness has been studied on several fronts in general education. The problems inherent in the different methods of assessing teacher effectiveness in regular education have been pointed out by several writers (2, 8, 20, 34). The complexity of assessing teacher effectiveness seems to have been summarized by Hanawalt in general when she stated, "Therefore, in merit rating, we are employing uncertain criteria in the hands of inadequately qualified persons to achieve undefined educational goals in the development of not well understood youth for a society rapidly changing in ways which we cannot anticipate clearly." (20, p. 6) The present status of studies of effectiveness of individual teachers in regular education has been summarized by Barr, Eustace, and Noe (4, p. 266) when they said, "The search continues for a single generalized pattern of qualities of behaviors that characterize good teachers, not withstanding the possibility that differential studies of teachers teaching different subjects to different sorts of pupils under different conditions and for different purposes might prove worthwhile." (p. 266) Barr and Associates (5) in the second report of the Committee on Criteria of Teacher Effectiveness say that we should consider the possibility of patterns of teacher effectiveness which might vary according to the type of teacher, child, educational goal, and classroom situation.

There seems to have been no direct study of teacher effectiveness in this field of education of trainable children. Of the several attempts to study changes in the children after a period of time in a special class (12, 17, 19, 21, 25), the results seem to point to some gains, especially for the children with I. Q.'s above 35, although Goldstein (17) and Hottel (21) both pointed out the inadequacies of existing measuring instruments. The question of individual differences in teacher effectiveness was not brought up in these evaluative studies although such differences might tend to obscure results.

Perhaps the only real measure of teacher effectiveness would come from follow-up studies of the children after they had left school, so that the effects of the classroom experiences on ultimate adjustment might be measured. This, too, is a complex problem since only by use of control groups can any definitive answers be found and such controls are difficult to set up and maintain.. However, there have been a few follow-up studies of trainable children who have been in special classes Delp and Lorenz (10), in one follow-up study without the use of control groups, reported generally good adjustment in their children. It should be noted that follow-up studies of trainable children who were in classes for educable retarded or normal children (23, 38) indicated about the same percentage of job placement and extended adjustment in the community as was found in studies where the children had been in trainable classes.

Rice (31) did an unpublished follow-up study of 50 children with

I. Q.'s in the trainable range. Only 44 per cent of this group had been in classes for trainable children. The others were in educable classes where the program probably would not have been geared to their specific needs. Rice felt that work experiences for those who had them seemed to have no relationship to the school experiences of these children, that reading and arithmetic skills seemed to play no part in the daily activities of the severely retarded adult, that simple craft activities learned in school at 15 years of age were being used at 30 years of age.

Saenger (35) reported on a follow-up study of a selected sample of individuals who had been in New York City classes for severely retarded children. The study made no attempt to evaluate the effectiveness of the school classes and therefore did not include a control group. Saenger's study found 66 per cent of all former pupils were still living in the community (1,742 out of 2,640); 75 per cent of 520 parents interviewed felt that their retarded child was easy to get along with and presented no major problem; 78 per cent of the severely retarded in this study went out alone occasionally, although only 33 per cent left the immediate neighborhood; 27 per cent worked for pay; 9 per cent more had worked but were without a job at the time of the study, and most of the jobs were outside their own homes. (In general, Saenger's study reported better home and community adjustment and work potential and more children living at home than the other studies of this type of individual.) The I. Q. range in Saenger's study was between 40 and 50; this may have something to do with the results reported. More study is needed to see whether New York City's curriculum is comparable to that of the other schools or whether there was perhaps an added emphasis on such lesson areas as occupational education. Without control groups, however, it is difficult to evaluate the findings of such a follow-up study.

While these follow-up studies have some implications about effectiveness of the program as a whole for the children, they do not make allowances for individual differences among the teachers in teaching effectiveness. It seems that much of the problem in measuring the effectiveness of teaching stems from two major factors. First, the child is the one who has to do the learning and school is only one influence on the child. This problem is basic in the follow-up studies and difficult to assess without control groups. The second major factor would be that every teacher has both strong and weak points that together make up the sum of teaching effectiveness. Therefore, rather than approach the problem in terms of teacher effectiveness, which would imply that the success or failure of the program is solely due to the individual teacher, it would seem more practical to think of teaching effectivenesses and look for the types of differential factors which could influence the effectiveness of the teaching.

Scattered studies on learning of severely retarded individuals reported by Aldrich and Doll (1, 11), Gardner (14), Loos and Tizzard (28), and Gordon, O'Connor and Tizzard (18) have given some indication of the types of details we should look for in teaching effectiveness. Their studies have brought out the importance to the learning of the individuals within this I. Q. range of such factors as motivation, attitude, and interpersonal relationships. Aside from the few studies reported here, there seems to have been no research that could be even remotely connected to this question of teaching methods used with trainable children.

STATEMENT OF THE PROBLEM

This investigation was designed to identify methods being used in public day school classes for severely mentally retarded (trainable) children. Investigation of the dynamics of the "how" of teaching (teaching-techniques), and the "what" of teaching (curriculum or lesson-areas) involved study of the following:

Teaching-Techniques.

1. What specific teaching techniques are being used? (Identification and categorization.)
2. Is there any patterning to these teaching techniques, any factors which might indicate areas of teaching problems? (Cluster analysis.)
3. How consistent are the individual teachers in the use of these teaching techniques from fall to spring?
4. Is homogeneity of class, size of class, or teaching proficiency related to use of these teaching techniques?
5. What factors might contribute to successful teaching?

Lesson-Areas.

1. What specific lesson-areas are being used in these classes? (Identification and categorization.)
2. How much relative emphasis is being given to the different lesson-areas?

3. **How much and what type of individualization of instruction is being used?**

4. **Is there any indication that homogeneous grouping, class size, or teaching effectiveness might influence the amount or type of emphasis put on the different lesson-areas or the way the lessons were used?**

5. **Is there any relationship between lesson-areas and the type of teaching technique used?**

DESIGN OF THE STUDY

PARTICIPATING TEACHERS.

Teachers of 29 day classes for trainable, white children in the State of Tennessee were studied.* Of these 29 classes, 15 were in centers where it was possible to have two or more classes for trainable children (eleven of these classes were in three of the large cities: five in Chattanooga, three in Knoxville--both of these cities having separate schools for trainable children, and three in Memphis--as part of a regular school); of the other 14 classes, six were in regular schools, three were in separate schools or buildings along with classes for educably retarded children, one was in a separate building with a normal kindergarten, and four were in buildings by themselves--one in a cottage of its own, two were housing development office buildings, one had a two-room country school for its own use. These classes were scattered across the state in 19 different counties.

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* This included all but three such classes in the State of Tennessee operated by the public schools with financial support from the State Department of Education. (Two of these three were excluded because they were being set up for the first time in the fall of 1957 and it was felt by administrators that visiting observers would be detrimental to the adjustment of the children in these classes; the third class was dropped from the study when the teacher was changed in the middle of the year.)

It was not possible to get complete background data on all of the teachers. Three were men, 26 were women. Only two, both women, were not married. Inspection of Table I shows that five teachers were in the age-range 20-29,eight were in the range from 30-39, eleven were 40-49 years of age, four were in the 50-59 range, and one was over 60. In considering years of previous experience with trainable children, eight of the teachers had no previous experience, four had one year, eight had had two years of experience with this type of child, four teachers had three years previously, one teacher had four years, and four teachers had five years of previous experience. Most of the teachers had been teaching in other types of classes before working with trainable children. Table I shows that for the 28 teachers for whom this information was available, only six had not taught in regular grades (four of these six teachers had been teaching trainable children previously). Six teachers had from one to four years with regular children, eight teachers had 5-10 years (one also had three years with educable retarded), and three teachers had taught more than fifteen years in the regular grades (Mn: 7.18; Range: 0-24).

For 28 of the 29 teachers, thirteen reported no college degrees, twelve had an A. B. or equivalent, and three had an M. A. or equivalent. All teachers in the state of Tennessee must be certified, although there are as yet no specific training requirements for teachers of trainable children. For 28 of the 29 teachers, fifteen held

TABLE I

AGES OF THE 29 PARTICIPATING TEACHERS, AND BACKGROUNDS IN EDUCATION AND SPECIAL EDUCATION

Ages N = 29

Ages	20-29	30-39	40-49	50-59	60 +
N.	5	8	11	4	1

Years Previous Experience with Trainable Children

N = 29

Years	0	1	2	3	4	5
N.	8	4	8	4	1	4

Years Teaching Regular or Educable Retarded Children
N = 29 (Mn: 7.18; Range: 0-24)

Years	0	1-2	3-4	5-6	7-10	11-15	16 +
N.	6	4	2	3	5	5	3

College Degrees

N = 28

Degrees	None	B.A.	M.A.
N.	13	12	3

Certification

N = 29

Type of Certification	Elementary	Secondary	Provisional	Permit
N.	15	2	5	6

regular elementary certificates, two held secondary certificates, five held provisional certificates (not all education courses completed) and six had permit certification (no college work). (The Director of Special Education stated that the ratios for type of certification of the teachers in this field is about the same as for teachers in regular education in Tennessee.)

Before this study began, all of these teachers had been given some orientation to the problem of teaching trainable children. The state rules and regulations for these classes require the Special Education Division to provide in-service training to ensure a common orientation. Therefore, attendance is required for all teachers of trainable children twice a year at an in-service training meeting, in which teachers and consultants work together on common problems of curriculum and class management. (The first meeting comes early in the fall term.) A curriculum guide has been developed and is being expanded and revised each year. Four regional supervisors are also available during the year to work directly with teachers if requested. In addition to such in-service training, 23 of the 28 teachers reported one or more college courses in some phase of special education (at least 18 of the teachers had a course specifically on education of trainable children; information was not complete for the other teachers).

COLLECTION OF THE DATA

Procedure.

Classroom observations were made of teacher-activities and teacher-pupil interactions. Included were verbatim reports of what the teacher was saying and descriptions of teacher activities, gestures and other non-verbal interactions; descriptions of the settion in which the behavior occurred were given as often as possible.

Each of the 29 classrooms included in this study was visited twice during the year--the first visit shortly after the middle of October and the second visit between April 15 and the closing of school for the year. The order of visits was determined only by an attempt to keep transit time at a minimum and by the work schedules of the investigators. In each case the county or city superintendent was notified in advance of the probable date of visitation so that all but two teachers were expecting the visits.

On each occasion when a class was visited, the principal investigator and the graduate research assistant both were in the classroom. Where physical arrangements in the room permitted, the observers were seated behind tables on one side of the room and the tape recorders used were obscured from the children's view by tables or the observers' chairs. Microphones were arranged so that the observers could alternate in dictating a running account of the teacher's behavior into the recorder. An electric timer was wired into the circuit in such a way that a signal was emitted into a microphone every five minutes. The observers were able through this device to spell each other at twenty minute intervals. Five twenty minute intervals beginning with the opening of school and ending before noon were recorded for each visit to a classroom. While lunch, outside recess, and rest periods were omitted from the observational period, preparations for leaving the room and free play periods in the classroom were included. The specific procedures for observation followed closely those suggested by Barker and Wright in Midwest and Its Children (3, pp. 214-219) except that preliminary practice of the recording technique had shown that with the type of sensitive tape recorders available. it would be possible to whisper directly into a microphone while sitting within two feet of a group of children and not be overheard; so observations were recorded directly in the classroom.

Pilot Study.

After some preliminary practice with the observation technique, a pilot study was conducted in Louisville, Kentucky in the spring of 1957 with the five classes for trainable children in the school sponsored by the local parent association. During this pilot study, the technique of recording was further perfected. Use of the apparatus in the classroom only rarely seemed to elicit a perseverative attention from a few of these trainable children; teachers and observers felt that it was possible to get a valid record of a typical program on any one day.

The Louisville pilot study, and subsequent observation in a kindergarten for trainable children (run by the Glenleven Presbyterian Church in Nashville) and a normal kindergarten and first grade at the Peabody Demonstration School provided the practice needed to reach a suitable level of consistency between the two observers.

The material from the Louisville observations was used for an exploratory categorization of teaching techniques.*

The Problem of Validity.

Wandt and Ostreicher (41, p. 1) have said that the validity of the generalizations made from observational data depend on two assumptions: First, the presence of the observer did not materially effect the behavior observed, and second, the behavior observed in a teacher's class is representative of that which would have been observed had the observations been made at other times and with other classes. As far as Wandt and Ostreicher's first point is concerned, Barker and Wright (3, p. 10) felt that observer interference could seldom be reduced to zero, and that the problem is more one of making the interference minimal, of defining it, and of keeping it as nearly constant as possible. They felt that the most practical way to minimize the problem of the outside factor was to get to know and be known by the subjects, and during the observations build the role of a friendly, non-evaluating, non-directive, and non-participating person who is interested in what people do.

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* The categorization was further developed from the material in the main study.

The principal observer was able to become acquainted with the teachers by attending the in-service training meetings held by the State Department of Education for the teachers twice a year (see page 12). During these meetings, the purpose of the study and the technique to be used were explained. The teachers made helpful suggestions for carrying out the classroom visits. The investigators felt that these preliminary meetings were responsible for much of the rapport that was in evidence between the teachers and the investigators. Cooperation by the teachers was outstanding throughout the study.

The observers had no prior opportunity to become acquainted with the children in the classes, though it was apparent during the pilot study that Barker and Wright (3, p. 211) were correct in their statement that children cannot stop being themselves for long, if at all, just because some one is watching them. The classroom routine began to absorb the children soon after the teachers explained something to the effect that the observers were there to see all the things they do at school which are so much fun, and tell other classes about it. In any case, it was felt that the presence of the observers was a constant factor in each classroom, in that all teachers would have the same problem. As has already been stated, the attempt was made to minimize the presence of the observers by staying back to one side of the room, along the wall. Care was taken by each observer to keep his eyes moving so that any individual being watched was not stared at fixedly.

Another possibility in this study was that the day's activities might not be typical of days when an observer was not present. During the preliminary meetings with the teachers, stress was put on the need for observing a "typical day". It was felt that the cooperative aspects of the study were more important than any attempt at rigid control of this factor by unannounced visits. One point brought out by the teachers in the preliminary meetings was that these trainable children need the security of a known routine, and any major changes in the day's program would upset them. There was little evidence of this sort of "change" and its consequent effects during any of the class visits.

A related point should be noted here. It is probable that a teacher will "rise to the occasion" when visitors are present. For this study, this would seem more an advantage than a disadvantage, since it would tend to give a good example of possible procedures. There is no way of controlling a factor like this, but the problem would be minimized since it would tend to be a "constant" factor in each classroom. The repetition of observations in the spring would also help to provide a broader sample of behavior. In this study the teachers were considered to be intelligent, professional people interested in their work and anything that would help them understand and do their work better. The validity of any other approach might be as much open to question as is this one.

The question of the representativeness of behavior observed (Wandt and Ostreicher's second point, 41) has been somewhat allowed for by the number of classes visited and the repetition of observations in the spring. A wider sampling of behavior would have been much to be desired, but too impractical because of the unwieldy amount of material the technique of recording a running account of teacher-pupil behavior produces. The general validity of the data can only be inferred from the analysis of the data and from the relationships that appear. There is the possibility that Tennessee teachers are not representative of teachers of trainable children in general. This possibility must be considered in the interpretation of the results.

Another aspect to consider about validity of the data is that of the objectivity of the reporting. With practice, observers can be trained to report activities relatively objectively with a minimum of interpretation which would distort the findings. In dictating a running account, especially when, as has been mentioned previously, there is an attempt to repeat exactly what the teacher says, describe details of behavior, and give some indication of the setting in which it happens, there is little time to think of what it means or try to interpret what is seen. It was felt that the preliminary observation practice provided in this study helped reduce to a minimum any undesirable interpretations.

As already stated, the approach and procedures for observers as described by Barker and Wright (3, pp. 205-219) were used as far as possible. Since teaching methods were under study, attention was focused upon the teacher's behavior and situation. Attention was paid to how a thing was done, as well as what was done. The pilot study had seemed to indicate, as Lippit and White found (27, p. 489), that what was said would be among the most useful data, and a teacher's comments were repeated verbatim as far as possible. Any interaction or attempts at interaction between a child and the teacher was recorded.

The Problem of Reliability.

The consistency of observations of the two observers was approached from the standpoint of a detail by detail comparison of simultaneous observations. Training of observers continued during the pilot study until the percentage of agreement on detailed items noted was consistently 94 per cent or above. Percentage of agreement was computed by the method Barker and Wright used in securing "an estimate of accuracy" for their episodes (3, p. 271). The number of items on which both observers agreed was divided by the mean number reported by both observers. The formula would be:

$$\frac{\text{number of details reported by both observers}}{\frac{\text{total details by A} + \text{total details by B}}{2}}$$

All that this percentage shows is that both observers were seeing nearly the same thing. It does not take into account the fact that both observers may not have reported a detail which did exist, or that both observers may have reported a detail erroneously. It is, however, an estimate of observer agreement.

Since categorization of the data was to be done according to teaching-techniques and lesson-areas used, a second measure of reliability was needed. For the categories on teaching techniques, where fine detail was involved, the percentage of agreement was again used. For each person doing the categorization, the percentage was figured by a procedure in which any unnecessary additions or omissions (as decided by a consensus of those doing the categorization) were subtracted from the total for each person. The result was divided by an estimate of the total possible; this estimate was derived by a cumulative total of all possible items, plus one point for each item where there was disagreement over categorization. The formula would be as follows:

$$\frac{\text{total no. for a person} - \text{no. omitted or unnecessarily added}}{\text{total no. different items} + 1 \text{ for each disagreement}}$$ *

Three people, in three overlapping pairs, worked on consistency of categorization until each pair reached a mean of .83 on percentage of agreement. (The range was from .81 to .86.) It did not seem possible to get a higher percentage of agreement with the fine detail that was being used. Spot checks were done at intervals during the categorizing to be sure that this range of agreement was being maintained.

In determining reliability of categorization of lesson-areas taught, the number of lesson-areas involved for any one teacher was so much less than the numbers involved in the teaching-technique categorization that instead of attempting to work out a percentage of agreement score, at least two individuals went over each observation jointly to reach a consensus. A further indirect measure of agreement in this area was made when the reliability of assigning weights to the lessons was checked. For one type of analysis, weights were assigned to the lesson-areas

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* The number of items per 20 minute period ranged from 161 to 213 in one sample 100 minute period.

according to an estimate of whether the teacher was using it "incidentally" (one point), as a "partly developed lesson" (three points), or as a "fully developed lesson period" (five points). A "percentage of disagreement" was computed by dividing the sum of the differences between each weighting by the total possible weights according to a consensus. The formula would be:

$$\frac{\text{sum of differences between 2 weightings}}{\text{sum of possible weights (by consensus)}}$$

Practice in assigning the weights was continued until the percentage of disagreement was down to .10. It was felt that this type of .90 per cent agreement on specific weights assigned to each lesson area would not have been possible if categorization or "naming" of the lessons had not been reliable. It should be remembered that any categorization is useful if the categories are operationally defined; the question of reliability only comes up in assigning items to the various categories.

It was thought that perhaps there might be a question of reliability in transcribing the tape material to paper since very fine detail was involved in the teaching technique categories. However, a check of typing at intervals showed that this did not seem to be a problem; where any doubt existed, consensus was again obtained.

ANALYSIS OF THE DATA AND RESULTS

As described in the Statement of the Problem, there are two major parts to analysis of the data: (1) Teaching Techniques (the "how" of teaching), and (2) Lesson-areas, or curriculum covered (the "what" of teaching). The data results for the section on Teaching Techniques will be presented first.

TEACHING TECHNIQUES.

Identification and Categorization of Teaching Techniques.

Forty three specific teaching techniques were identified and categorized according to eight major areas of teaching methods. For this analysis, the five 20 minute typed observation protocols of all 29 teachers for the fall only were analyzed in detail. The episoding procedure described by Barker and Wright (3, pp. 225-273) was used as a basis in defining separate incidents for isolation of specific techniques and for categorization.

Defining specific Teaching Techniques was the major aim in this aspect of the analysis; the categorization was done for the sake of convenience in handling the data (probably there would be as many ways of categorizing as there were people doing it). The categories grew out of the observation material; they were not set up in advance and were considered exploratory in nature. As was previously stated, material from the pilot study provided the basis for a preliminary categorization and identification of many of the detailed Teaching

Techniques. Other details were added from observations in the major part of the study.

In this project it seemed most convenient to group the specific Teaching-Techniques under eight major areas according to the way the techniques were used (i.e., the apparent intent of the teacher, or the reason for doing something in that particular way); the 43 Teaching-Techniques and their classifications, along with an indication of their rank-order in frequency of use, are as follows:

	Rank-order According to Frequency of Use*
1. S: Structuring the Teaching Situation. (Total times used: 2284)	
a. Gets children's attention (any time).	14
m. Gives directions about equipment or position for an activity. (May explain.)	13
i. Introduces what comes next; decides what to do, may discuss it with the children.	15
c. Starts children in clean-up.	27
s. Sends children on errand out of room.	39
2. M: Motivation. (Total times used: 3431)	
p. Praises, rewards (group and individual).	9
c. Challenges: competition and rivalry.	23
i. Appeals to interests, fun, games, things they like.	16
e. Explains cause and effect ("if this....then this"--something good); helps children see a reason for doing something.	32
t. Appeals to desire to please the teacher or to get teacher's attention (sit by teacher; "I will be happy if....", etc.).	35

---

* Range: 3,637 - 3, for the 43 items.

Rank-order

u. Urges to start; encourages or urges to continue. - 11

3. G: Guidance and Reinforcement.
(Total times used: 8402)

e. Develops a concept; explains, reminds, relates known to unknown, answers own rhetorical question, elaborates, tells how or what. - - - - - - - 2
r. Acknowledges response as right or wrong; corrects (asked-for response; requires referrant word to what child said). - - - - - - - - - - - - 3
a. Gives verbal assistance; talks or sings along with children (prompting). - - - - - - - - - - - - 17
tr. Acknowledges child's response by repeating exactly what child has just said. - - - - - - - - 18
q. Asks child a question to stimulate thinking (prompting or guiding question). - - - - - - - - - 5

4. N: Non-verbal Teaching. (Total times used: 4085).

t. Touches child, leads to seat (support). - - - - - 25
pg. Uses physical guidance: Guides movements so child can take over gradually as he gets the feel of it. - 29
g. Uses gesture (may include or imply visual aid or demonstration). - - - - - - - - - - - - - - - - - 4
w. Writes on board, child's paper, etc. - - - - - - - - 28
v. Uses visual aids; holds up something to show the children. - - - - - - - - - - - - - - - - - - 21
a. Assists child in some way; takes or gives something (not touching the child). - - - - - - - - 10

5. I: Involves Children in Lesson.
(Total times used: 5034)

c. Calls on child; assigns work; response indicated (not rhetorical question); may repeat if no answer is given. - - - - - - - - - - - - - - - - - - - 1
a. Acknowledges child's original response directed towards lesson; may explain. - - - - - - - - 8
h. Gets children to help each other. - - - - - - - - - 41
v. Asks for volunteers (may imply an indirect response); asks if any child wants to do something. - 34

Rank-order

6. **F: Feeling-Tone: Anything not directly connected with lesson, which would build up child's feeling of acceptance, self-confidence, self-esteem, feeling of rapport. (Total times used: 2284)**

   r. Gives personal recognition, caress, greeting, smile, look, conversation. - - - - - - - - - - - - 7
   a. Gives personal admiration, compliment, praise, or recognition for something child had or did. - - 30
   p. Uses politeness with children; consideration; treats children like grown-ups. - - - - - - - - - 20
   i. Original ideas of children (not related to lesson) are acknowledged (accepted or rejected); teacher may go on and talk about it in a sentence. - - - - - - - - - - - - - - - - 22
   c. Teacher takes part in group activities, not as a leader, but taking turns with children, playing game right along with the children. - - - 40

7. **T: Teacher-Centered (little or no interaction with children). (Total times used: 2364)**

   w. Writes on records, plans, makes class materials, etc. - 36
   h. Does things herself, instead of letting children do them. - 6
   o. Goes out of the room. - - - - - - - - - - - - - - 31
   r. Repeats words or statement (her own), with no attempt to vary words for instructional purposes. - 19
   a. Teacher interacts with matron, other adults. - - - 24

8. **C: Individual and Group Control. (Total times used: 1266)**

   r. Tells or gets child to leave group, removing for isolation though may give something to do. - - 42
   i. Removes interfering stimuli; takes something away from child more or less casually; little or no talk about it. - - - - - - - - - - - - - - - 37
   t. Gets or tells child to conform, sit, or be quiet. (If child is doing what he is told not to do, or not doing what it was told to do.) - - - 12

Rank-order

tc. Uses touch-control; calms child by touching him.- 26
w. Warns, in a supportive way; tells what not to do. - 33
n. Blames, scolds, threatens without following up; physical punishment. (Non-supportive control.) - 38
d. Distracts; gives something else to do without making a fuss (not isolation). - - - - - - - - - - 43

These categories, as defined, supplement each other in that any specific technique in any major area might be used as a method or means of getting results in any other major area, i.e., "Guidance" might be used in teaching a child "Control",or "Motivation could be part of any "Structuring" of a lesson preparation or clean-up, etc.

There seemed to be rather wide differences in amount of use of specific Teaching Techniques within any major category. There were also differences in the amount of use of the eight major categories themselves: Guidance and Reinforcement was used most, techniques for getting the children Involved in the Lesson-activity were second, Non-verbal techniques were third, Motivation came fourth, Teacher-Centered activities fifth, techniques related to Structuring the Situation and Feeling-Tone were tied for sixth, and Control techniques were least used (range: 8402 - 1266). It would be interesting to see if the same relative amount of use is given to these types of Teaching Techniques in classes for educable retarded or normal children.

Investigation of the Patterning of the Teaching-Techniques to Identify Common Factors.

The teaching-techniques, as categorized, involved specific aspects of supplementary, commonly mentioned approaches to teaching. Interrelationships are to be expected because of the complexity of the teaching process. However, it seemed probable that there might be some separate factors, or patterns, in the use of the specific techniques. Therefore, a cluster analysis was made of these teaching-technique items from the fall observations.

As a first step, Spearman rank-order correlation coefficients were computed for the 29 teachers for frequency of use of the 43 subcategories of the teaching-techniques for the fall protocols, only in order to show interrelationships among all the categories. Table II shows the intercorrelation matrix. Correlations of .30 or greater are significant at the .05 level, and correlations of .39 or greater are significant at the .01 level (15). A cluster analysis was run for the intercorrelation matrix by Tryon's procedure (39). The criterion for exclusion from a particular cluster was arbitrarily set at a decrease in the b-coefficient of 1.00 or greater. Any variable which, when added to the clustering process, increased the b-coefficient or resulted in a decrease of less than 1.00 was retained in that cluster. If any one variable met this criterion in two or more clusters, it was included in that cluster to which its addition

TABLE II

Intercorrelations
on Teaching-Technique
~~Sub-~~ Categories: (For all 29 teachers)

	NT	NPG	NG	NW	NV	NA	MP	MC	ML	ME	MT	MU	FR	FA	FP	FI	FC	CR	CI	ET	Ct	CW	CN	CD	TW	TH	TO	TA	TR	SA	SM	SI	SC	SS	GE	GR	GA	GTR	GQ	IC	IA	IH	IV
IT	—	.12	-.13	-.46	-.14	.09	-.26	.08	-.06	.40	-.24	.19	.09	.07	-.42	.12	.01	.43	.09	.62	.49	.46	.28	.45	.05	.59	.11	.34	-.06	.22	.41	-.03	.09	.03	.07	-.28	-.12	-.44	-.21	-.36	-.23	.21	-.30
PG	—	—	.36	.05	-.18	.35	.34	.21	.11	.05	.34	.38	.15	-.09	-.32	.15	-.20	.17	.24	.16	0	-.07	.08	.37	.22	.10	-.15	-.13	.46	.34	.15	-.45	.33	-.23	.36	.30	.12	.01	-.02	.21	-.18	.05	-.61
G	—	—	—	.20	.09	.31	.50	.18	-.10	-.07	.27	.56	.27	.04	-.07	.05	.19	.31	-.02	.03	-.24	-.10	.01	.28	.04	-.17	-.13	-.32	.58	.17	.20	-.20	.16	-.09	.40	.63	.28	.48	.26	.64	.17	.02	-.18
NW	—	—	—	—	.15	-.01	.33	.22	-.10	-.09	.16	.14	-.02	.21	.36	-.25	.28	-.17	-.10	-.35	-.28	-.21	-.14	.25	-.03	-.38	-.06	-.33	.31	0	-.24	-.05	-.15	.24	.14	.35	.14	.57	.37	.22	-.25	-.08	.14
NV	—	—	—	—	—	-.13	.02	.23	-.08	-.29	-.17	.07	-.02	.12	.09	-.01	.15	.36	.01	.08	.09	-.03	-.03	.55	-.23	-.19	-.07	-.18	.08	-.05	-.13	.21	-.25	.07	.01	.36	.08	.30	.15	.34	-.06	.23	.23
NA	—	—	—	—	—	—	.33	.17	-.15	.29	.09	.49	-.04	-.13	-.30	.01	-.24	.22	.21	-.20	-.29	-.15	.21	.23	.20	.24	.11	-.25	.34	.09	.10	-.36	.26	-.16	.45	.43	-.10	.30	.19	.22	.37	.19	-.14
P	—	—	—	—	—	—	—	.40	.08	.13	.23	.40	.22	.38	.04	-.11	.02	.09	-.11	-.35	-.45	-.22	-.06	.15	.06	-.29	-.14	-.29	.33	.08	-.08	.01	.17	.15	.44	.48	.35	.52	.24	.52	.17	.14	.07
C	—	—	—	—	—	—	—	—	.18	.22	.23	.20	.25	.30	.04	.06	-.38	.16	.03	.06	-.01	.04	-.03	.15	-.12	.07	.07	.02	.18	.23	-.18	.31	-.41	.15	.54	.35	.04	.22	-.02	.40	-.25	.13	-.01
I	—	—	—	—	—	—	—	—	—	.23	.08	.14	.07	.12	.40	.13	-.16	.21	.23	.10	.12	.26	.21	.22	-.20	-.01	.27	.21	-.26	.26	.20	.20	-.16	.29	.28	-.26	.23	-.13	-.23	.03	.18	.36	.18
E	—	—	—	—	—	—	—	—	—	—	-.02	.24	.16	.62	.14	.04	-.22	.32	.39	.27	.16	.46	.50	.30	.02	.38	.19	.53	-.14	.54	.40	.34	.24	.43	.52	-.27	.28	-.08	0	-.26	.08	.30	-.15
T	—	—	—	—	—	—	—	—	—	—	—	.09	.09	.08	.18	.35	-.04	.09	.18	-.06	-.13	-.13	.11	.23	-.09	.03	-.33	.18	.26	-.10	-.16	-.19	.16	-.10	.37	.25	.05	.08	-.11	.43	-.04	-.03	-.12
U	—	—	—	—	—	—	—	—	—	—	—	—	.12	.14	.04	-.11	-.14	.36	.33	.11	.09	.21	.38	.24	.23	.19	0	-.08	.62	.56	.47	-.12	.37	-.14	.49	.37	.21	.29	.23	.38	.20	.19	-.09
R	—	—	—	—	—	—	—	—	—	—	—	—	—	.41	-.06	.30	.06	.14	.13	.33	.01	.24	.01	.36	-.17	-.11	-.09	.10	-.03	.21	-.08	.19	-.15	.31	.29	.13	.20	-.13	-.28	.23	.04	.09	-.13
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.32	-.02	.10	.29	.24	.22	.16	.42	.28	.30	-.17	-.05	.01	.37	-.16	.44	.21	.49	.11	.70	.42	-.08	.40	.18	.10	-.01	.02	.26	-.07
P	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.24	.14	.15	.03	-.17	-.13	.09	.15	.26	-.19	-.28	.13	.26	-.11	.09	-.10	.48	.07	.41	.21	-.12	.28	.16	.09	.19	.05	.28	.20
I	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.06	.26	.17	.45	.21	.24	.18	.31	-.07	.24	-.11	.42	.16	-.01	-.06	-.28	-.15	.07	.01	.10	.09	-.18	-.55	.14	.11	-.20	-.22
C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.21	-.21	-.06	-.05	-.01	-.17	.59	-.24	-.36	-.08	-.18	-.05	-.29	-.03	.03	.04	.20	-.25	.02	.25	.11	.20	.08	-.01	.15	.02
R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.44	.50	.46	.50	.61	.56	-.04	.36	.08	.37	.25	.41	.51	.28	.26	.24	.16	.10	.36	.23	0	.22	.16	.43	-.02
I	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.28	.47	.58	.66	.40	.02	.29	.07	.36	.18	.43	.34	-.06	.18	.05	.20	-.25	.39	-.05	-.04	.01	.11	.40	-.12
T	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.74	.71	.43	.45	-.14	.42	.10	.44	.04	.33	.32	-.01	-.04	.20	.13	-.13	-.08	-.40	-.42	-.16	-.20	[illegible]	-.34
CtC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.70	.52	.44	-.06	.47	.30	.43	.03	.36	.33	0	-.03	.12	-.05	-.24	-.07	-.41	-.18	-.39	-.15	.22	-.15
CW	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.56	.38	-.17	.35	.22	.50	.06	.40	.38	.15	-.08	.34	.14	-.31	.15	-.35	-.27	-.17	.03	.20	-.41
CN	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.36	.09	.63	.19	.42	.17	.37	.44	.02	.43	.18	.24	-.22	.17	-.01	-.09	-.11	.22	.38	-.09
CD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.32	.34	.30	.35	.24	.26	.27	.36	.38	.31	.25	.27	.33	.18	.38	.23	.24	.48	.22
W	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.24	.23	-.04	.23	.24	.30	-.29	.46	-.09	-.20	.10	-.14	.09	.29	-.13	.23	.13	.15
H	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.32	.39	.07	.16	.32	-.22	.24	.09	.22	-.30	-.31	-.30	-.31	-.35	.22	.25	-.28
O	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.18	-.28	.07	.12	-.08	-.09	.36	.29	-.18	-.19	-.02	.03	-.23	.42	.33	-.07
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.27	.28	.18	.18	.04	.32	.12	-.49	.18	-.28	-.50	-.22	-.05	.28	-.28
R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.27	.16	-.33	.27	-.30	.18	.43	.13	.26	.23	.43	-.04	.09	.01
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.70	.23	.26	.20	.30	.04	.40	.01	.12	-.07	-.02	.35	.15
M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.01	.43	.18	.02	-.18	.30	.01	.11	-.17	.22	.30	.11
I	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.17	.45	.10	-.16	.26	-.04	.10	.01	-.14	.36	.33
C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	.16	-.04	.13	-.02	.31	-.12	.24	.39	.20
S	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.22	-.22	.23	.25	.04	-.15	.24	.42	.10
E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.26	.08	.12	.12	-.29	.17	.22	-.15
R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.03	.47	.27	.08	.08	-.10	.05
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.29	.13	.32	.02	.46	.20
GR	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.34	.50	.14	.16	.06
GQ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-.04	.04	.32	.37
C	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.15	.08	-.06
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.39	-.0
H	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.54
V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

resulted in the largest increase or smallest decrease in the b-coefficient. Seven clusters were identified.

The degree of independence of the clusters was computed for each teacher on each cluster by summing the standard scores of each cluster algebraically. The clusters, or more exactly, the composite scores of the 29 teachers on the clusters, were then correlated with each other by the Pearson Product-Moment Method. These intercorrelations are shown in Table III. The correlation between clusters I and VI were significant beyond the .01 level of confidence. Correlation between clusters IV and VI were significant beyond the .05 level of significance. The apparent independence of most of the clusters warranted an effort to determine what teaching areas the clusters seemed to include. Therefore, they were submitted to five different people for naming so that consensus would be available. The results are given in the following description of the clusters.

Seven clusters were identified from the cluster analysis: I-Individual and Group Control; II-Getting the Children Willing to Start and Continue Working; III-Building Up a Sense of Personal Worth in the Children; IV-Structuring or Guiding the Learning; V-Encouraging Co-operative Interpersonal Interaction; VI-Providing for a Mind-set or Attention; and VII-Drawing "From" the Children (as opposed to "pouring in").

TABLE III

INTERCORRELATIONS OF TEACHING TECHNIQUE CLUSTERS

Cluster	I	II	III	IV	V	VI	VII
I		-.22	.01	.07	-.15	.57**	.23
II			.04	.24	.03	-.02	.003
III				-.21	-.02	.29	.13
IV					.06	.39*	.31
V						.07	.15
VI							.34
VII							

* Significant at .05 level.

** Significant at .01 level.

Any correlation in the above table would be significant at the .05 level of confidence if it exceeded .381 and at the .01 level if it exceeded .487.

Cluster I. (Individual and Group Control)

Nt: Touches or steers the child in a supportive fashion; leads to seat.

Cr: Sends child off by himself, or out of room when he can't cooperate or conform.

Ci: Casually removes interfering stimuli with little or no talk about it.

Ct: Gets or tells child to conform or do what he should be doing (he may not be misbehaving).

Cto: Touch-control: calms child by touching him.

Cw: Warns in a supportive way; tells what not to do without explaining why.

Cn: Non-supportive; blames, scolds, threatens, gives physical punishment.

Cd: Distracts: gives child something else to do without making any fuss over the behavior to be stopped.

Th: Does things herself instead of letting children do them.

This was unanimously felt by the consultants to be a cluster in which individual and group control is reflected. Nonverbal techniques are used as well as verbal. The inclusion of the Th category probably indicates that when a lot of control contact is made, the teacher is also doing things herself instead of letting the children do them.

Cluster II. Getting the Children Willing to Start and Continue Working.

Ng: Gestures used for communication (as visual aids).

Nw: Writes on board or child's paper.

Nv: Use of visual aids such as movies, pictures, charts.

Np: Praise or reward: comments to encourage.

Nc: Challenges by appeal to rivalry or competition.

Gr: Acknowledges or accepts response as right or wrong.

Gtr: Acknowledges child's response by repeating exactly what the child has just said.

Ic: Calls on child for a verbal or action response but not with the use of a question.

Tr: Repetition of teacher's words or statement; no attempt to vary words.

The teacher or authority centered aspects of this cluster were noted by most of the consultants. The consensus was that this is an instructional cluster, designed to guide or motivate the children so that they will be willing to start to work and continue to participate in the lesson.

Cluster III: Building Up a Sense of Personal Worth in the Children.

Fr: Individual recognition of the child (not associated with the lesson). Greeting upon arrival, smiling.
Fa: Personal admiration, compliments or praises for something the child has or did.
Fp: Politeness to the children; consideration, treats children like grown-ups.
Si: Asks, tells, or gives child choice of what comes next.
Se: Sends child on task or errand out of the room.

There was unanimous agreement among the consultants that the unifying characteristic here is one of pupil acceptance and recognition of the children as individuals. It would be a basic part of teacher-pupil relationships and involves building up a sense of personal worth in the children.

Cluster IV: Structuring or Guiding the Learning.

Npg: Physical guidance (guides movements so child can take over gradually as he gets the feel).
Na: Gives direct physical assistance to the child: moves a chair, hands something, helps with something the child is trying to do.
Sc: Tells or directs children to clean up in preparation for the next lesson.
Gc: Concept building: explains, reminds, relates known to unknown, tells how, etc.
Mt: Teacher uses own prestige as motivational reward: "You may sit by the teacher", etc.
Mu: Urging or encouraging to start or continue work.

This cluster was labelled in general a motivating, guidance, or way-pointing cluster. The two consultants with psychological orientation felt it was more maternal than pedagogic. Those in education pointed out the gradualism in instruction, transition from one activity to another, and the individualization involved--all aspects of structuring the learning situation.

Cluster V: Encouraging Cooperative Interpersonal Interaction.

Ih: Asks or gets children to help one another.

Iv: Asks for volunteers; asks if any child wants to do something or knows an answer to a question.

Both the social interaction and cooperation, and pupil participation aspects were pointed out in this cluster by all consultants.

Cluster VI: Providing for a Mind-set or Attention.

Me: Arousal of interest by "if this....then this" statement; helps children see reason for something.
Sm: Has children get equipment, move furniture, or change position for a lesson.
Sa: Gets children's attention (verbally) before starting or during a lesson.

The relationship of this cluster to cluster IV was mentioned by two of the consultants. In general, it was felt that this cluster involved fostering pupil participation in the sense of providing a mind-set and/or securing attention to be ready for a lesson.

Cluster VII: Drawing "From" the Children (as well as "Pouring In"); this would be on the verbal level.

Fi: Original ideas of the children that do not relate to the lesson are not acknowledged.
Gq: Asks guiding questions to stimulate memory or thinking or association in the sense of giving a clue.
Ta: Teacher does not interact with matron or other adults.

This was described in general as a more child-centered example of teacher-pupil interaction in which ideas of the child are drawn out. The fact that a teacher who is highest in this cluster is lowest in interacting with other adults would further the child-centered aspect; by not acknowledging extraneous comments, there would be no distracting from the subject at hand.

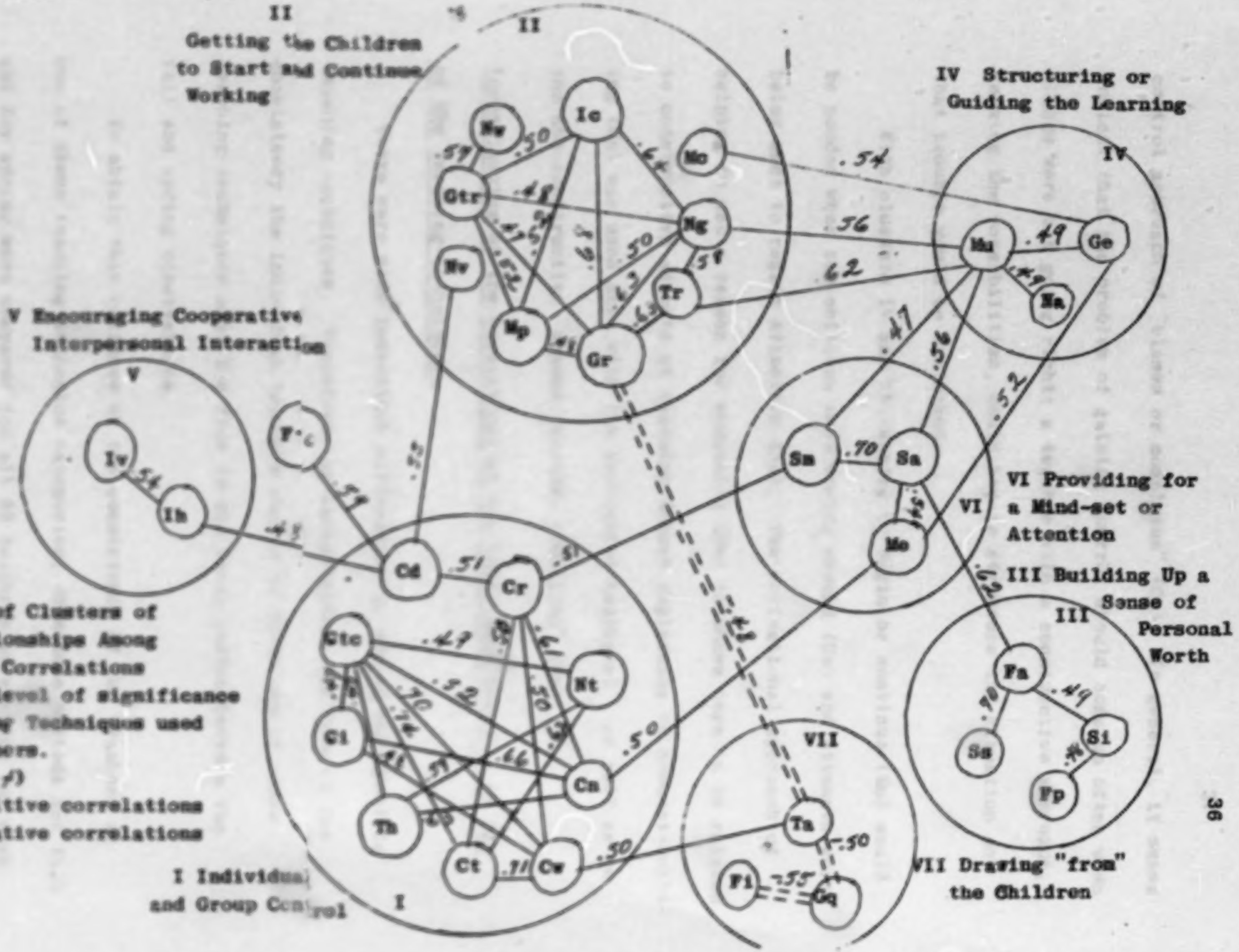
These seven clusters appear to represent seven problem-areas in teaching trainable children, namely, how to ensure that the children are (I) controlling themselves, (II) willing to work, (III) feeling secure, (IV) learning how to learn, (V) getting along with others,

(VI) paying attention, and (VII) contributing relevant ideas. A variety of teaching-techniques was used in each of these teaching problems; each cluster included at least two of the major teaching-technique categories. The interrelationships within the teaching process are further pointed up by the intercorrelations among three of the clusters.

Because more information was desired about the patterning and interrelations of the categories, a pictogram was devised in which all of the intercorrelations at the one per cent level were laid out in a sociometric-like process so that the relationships could be seen at a glance. Figure 1 shows these results. The similarity to the patterning in the cluster-analysis is apparent; most of the omissions were due to loadings at the .05 level which the cluster-analysis included.

The nature of the interrelationships between those clusters which had significant intercorrelations becomes more clear in this pictogram. With Clusters I and VI, it would appear that in the movement about the room involved in changing positions for a lesson (Fm) there would be more interaction among the children, possibly arguments over who was to sit where, and thus more chance for control problems to come to a head so a child would need to be isolated (Cr). The item "trying to help the children see a reason for something" (Me) was apparently used in a control situation and related here to the more non-constructive

FIGURE I


II
Getting the Children to Start and Continue Working
IV Structuring or Guiding the Learning
V Encouraging Cooperative Interpersonal Interaction
VI Providing for a Mind-set or Attention
III Building Up a Sense of Personal Worth
VII Drawing "from" the Children
I Individual and Group Control
II
IV
V
VI
III
VII
I
Nw
Ic
Mo
Gtr
Mg
Nv
Tr
Mp
Gr
Mu
Ge
Na
Iv
Ih
F'c
Sm
Sa
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Cd
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.62
.54
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.59
.51
.51
.61
.47
.32
.70
.74
.50
.66
.50
.71
.50
.50
.55
.70
.49

Pictogram of Clusters of
Interrelationships Among
Rank-order Correlations
Cat. .01 level of significance
for Teaching Techniques used
by 29 teachers.
(.01 = .47 ρ)
—— 's positive correlations
= = = = negative correlations

control approach of "blames or complains" (Cn). In general, it seems logical that the problem of gaining control should come up often when things were not going right; a teacher with a constructive approach, knowing the possibilities, could try to structure the situation so that trouble would be minimized.

With clusters IV and VI, urging to begin or continue (Mu) would be needed when the children were moving around (Sm) and attempts were being made to regain attention (Sa). The motivational approach of helping to see a reason for something (Me) is shown here to be related to constructive aspects of teaching (since explaining or concept-building (Ge) was used most with the top-ranked teachers) , as well as to the non-constructive "blames, scolds, complains" (Cn).

Investigation of the Consistency of the Individual Teachers in Use of the Teaching-Techniques.

There were wide individual differences in use of the specific teaching techniques. Therefore, an investigation was made of the consistency the individual teachers showed in their use of these teaching-techniques over the four to six month period between the fall and spring observations.

To obtain this estimate of the consistency of the teachers in use of these teaching-technqiue categories, 40 minute periods for fall and for spring were compared for all 39 teachers by ranking for each teacher the frequencies of use of each major technique category and computing the Spearman rank-order coefficient between the rankings. Usually, the 40 minutes that were compared in fall and in spring observations included the first 40 minutes of the observation, although because of occasional variations in time of beginning the observation, an attempt was made to include the same types of lesson each time as far as possible.

Table IV gives the correlation coefficients for the 29 teachers. In general, it would appear that this group of teachers was consistent for this measure of teaching-techniques in the sample of time and observation material used. For this sample size of eight categories a Spearman rank-order correlation of 0.64 is significant at the .05 level and 0.83 at the .01 level (one tailed tests) (36). The median for all 29 teachers is .86, with a mean of .78. It can be seen that all but four teachers were above the .05 level of confidence.

While in general the teachers seemed consistent in their amount and use of teaching techniques in the eight major areas of this categorization, inspection of table V will show that certain sub-categories tended to be used more consistently than others. For the 29 teachers, a correlation of .36 would be significant at the .05 level, and .46 at the .01 level.

In order to determine if the four teachers with the non-significant correlations were contributing unduly to the lack of correlation in those categories below the .05 level, their differences in each

TABLE IV

CONSISTENCY OF FREQUENCY OF USE OF 8 MAJOR TEACHING TECHNIQUE CATEGORIES FROM FALL TO SPRING*

Teacher	Rank Order Correlation	Teacher	Rank Order Correlation
28	.98	2	.83
14	.95	22	.80
21	.95	7	.80
6	.93	5	.79
10	.90	23	.77
9	.90	8	.76
25	.90	26	.76
15	.90	27	.69
19	.88	3	.67
11	.86	1	.67
4	.86	18	.57
29	.86	17	.47
20	.86	28	.38
16	.86	24	.34
13	.83		

All correlations were plus.

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* A Spearman rank order correlation coefficient of 0.643 is significant at the 0.05 level(one tailed test) and a coefficient of 0.833 is significant at the 0.01 level (one tailed test) for a sample size of eight. (36)

TABLE V

CONSISTENCY OF TEACHERS IN FREQUENCY OF USE OF SPECIFIC TEACHING TECHNIQUES FROM FALL TO SPRING

Physical support (NT)	.24	Praises (MP)	.46
Physical guidance (NPG)	.04	Challenges (MC)	.33
Gestures (NG)	.42	Appeals to interests (MI)	.41
Writes on board, etc. (NW)	.31	Shows cause and effect (ME)	.07
Visual aids (NV)	.01	To please teacher (MT)	.40
Personal assistance (NA)	.54	Urges to work (MU)	.23
Personal recognition (FR)	.66	Isolates child (CR)	.69
Personal compliment (FA)	.06	Removes interfering stimuli (CI)	.24
Politeness/consideration (FP)	.70	Tells to behave (CT)	.62
Children's original ideas acknowledged (FI)	.14	Touch-control (CTC)	.51
Plays with children (FC)	.02	Supportive warning (CW)	.38
		Blames, scolds, etc. (CN)	.74
Writes on records (TW)	.04	Distracts without scolding child (CD)	--*
Does things herself (TH)	.33		
Out of room (TO)	.04		
Interacts with adults (TA)	.64	Gets attention (SA)	.59
Repetition of words (TR)	.35	Changes positions or equipment (SM)	.47
Explains concept (GE)	.32	Introduces next lesson (SI)	.19
Acknowledges right or wrong response (GR)	.71	Starts clean-up (SC)	.05
		Sends on errands (SS)	.19
Tells how to do something (GT)	--*	Calls on child (IC)	.52
Verbal assistance (GA)	.30	Original, lesson-related ideas acknowledged	.32
Repeats child's words (GTR)	.27		
Guiding questions (GQ)	.46	Children help each other (IH)	.17
		Asks for volunteers (IV)	.88

All correlations were plus.

* Unable to calculate the coefficients for CD and GT due to complete lack of variability in CD and in the spring for GT.

category from fall to spring were compared with the amount of difference of the teachers having the four highest correlations; in 15 out of the 23 non-significant categories , there were differences of five or less points shown between the two groups, while in only three categories were there differences of 11 or more points between the two groups of teachers (i.e.--difference between fall and spring scores). Also, there were no significant differences between the four teachers with the highest correlations and the four with the lowest, in the number of lessons taught in the spring that were different from those taught in the fall.

Investigation of the Relationship of Homogeneity of Class, Size of Class, and Teaching Skill, to Use of the Teaching-Techniques.

To investigate other possibilities of patterns of use of these teaching-techniques (besides use in problem-areas of teaching and use by individual teachers), the 29 teachers were divided into comparative groups on three bases: (1) Homogeneity of their classes, (2) size of the classes, and (3) skill in teaching. Table VI shows which teacher was in each classification, and also shows the amount of overlapping that existed among the various classifications. One teacher was included in none of the groups, and five teachers were in all three groups (two of these were only in all three groups for the spring observations).

Homogeneity of the classes was determined on the basis of whether

TABLE VI

CLASSIFICATION OF TEACHERS INTO COMPARATIVE GROUPS ON THE BASIS OF HOMOGENEITY OF CLASS, SIZE OF CLASS, AND ESTIMATED SKILL IN TEACHING

Teacher	Homo-geneous Class	Hetero-geneous Class	Small Class	Large Class	Ranked Most Skillful	Ranked Least Skillful
1		•				
2	•					
3		•				• (1)
4					• (2)	
5	•				•	
6	•				•	
(3) 7						
8	•				• (2)	
9	•			•		
10	•				•	
11		•	•			•
12		•		•		• (2)
13	•			•		•
14		•			•	
15	•					
16		•	•			
17			•			•
18		•			• (1)	
19		•				•
20		•	•			
21		•	•			
22	•		•		• (2)	
23		•		•		•
24	•					•
25	•			•		
26		•		•		
27	•				•	
28		•	•			
29		•		•		

---

(1) In fall only.

(2) In spring only.

(3) This teacher fell into an intermediate or indeterminate group each time.

the class was in a center where two or more classes existed and the children were divided according to age and/or ability, or whether a teacher had the only class in her area, with the children having a wide mental and physical age range. Table VI shows that 12 teachers were in the homogeneous-class group (2, 5, 6, 8, 9, 10, 13, 15, 22, 24, 25, 27), and 14 teachers were in the heterogeneous-class group (teachers 1, 3, 11, 12, 14, 16, 18, 19, 20, 21, 23, 26, 28, 29).

For grouping according to size of class, a class was considered "small" if nine or less children were enrolled, and "large" if there were sixteen or more pupils. There were seven teachers in each of these groups. Table VI shows that the small classes included teachers 11, 16, 17, 20, 21, 22, 28; the large group had teachers 9, 12, 13, 23, 25, 26, 29.

Skill in teaching could only be estimated through a process of ranking the teachers, since it was not possible to obtain before-and-after measures of the children's learning. Three independent rankings were obtained. One was from a consultant who had done extensive observations in 21 of these classes as part of a two-year study of feasibility of the training. The other two rankings were made independently by each of the two observers as the classes were visited.

The question of relative effectiveness in teaching is a crucial one in this study, since the results would have implications for further research. Except for the consultant who had studied these classes previously, and the two observers in this study, no one person in the state was acquainted with all the teachers. In order to increase the objectivity of the ranking by the two observers, each one made an independent estimate of a teacher's effectiveness as a class was visited, made notes on a separate file card, and decided for himself the relative position of each teacher's card among the 28 others. No joint discussions or comparisons were made until all the classroom visits were completed in the fall. Then these independent rankings were compared. The research assistant had had no education courses, and tended to do his ranking on more global impressions; the principal investigator had listed more specific pro's and con's for each teacher, though the reasons for assigning a high or low rank were not the same for all the teachers. In spite of such discrepancies, for the top and bottom quartiles in the ranking (i.e., the top seven and the bottom seven teachers), only on the two borderline cases was there any discrepancy, and here a consensus was readily obtained. When the quartiles of the consultant's ranking were compared with those of the present investigators, there was agreement for those teachers who had been known by the consultant. (This was the first year with trainable children for three of these teachers, and they had not been observed by the consultant.)

The ranking procedure used by the two observers was repeated in the spring as a test of the consistency of the ranking. Only three teachers were in the spring groups who had not been there in the fall, and with only one of these was a consensus required. (In one case, a new teacher with little previous teaching experience of any kind had become so skilful over the intervening months that the ranking was now second out of 29 by both observers. In two other cases that were borderline, the observers had agreed on a change in the top-ranked group, and only had to reach agreement on the bottom-ranked case. No teacher, in any consensus, changed rank more than two points.)

Table VI shows that the top-ranked group included teachers 4, 5, 6, 10, 14, 18, 27, with teachers 4 and 18 being replaced in the spring by 8 and 22. The bottom-ranked group included teachers 3, 11, 13, 17, 19, 23, 24, with teacher number 3 being replaced by teacher 12 in the spring.

One further problem should be mentioned in relation to this question of effectiveness in teaching: While the top-ranked teachers were "good" teachers in many ways, the bottom-ranked teachers were not necessarily "bad", but only "less good", and obviously all of them had some good techniques. Because of the problem of defining the groups in the first place (i.e.--no external criteria of teaching effectiveness), and because effectiveness seemed to be a relative thing, with some overlapping between the two groups, results can only be suggestive.

In analysis of the data, frequency scores for the eight major and 43 sub-categories of Teaching-Techniques were tabulated for the five 20 minute observation periods in the fall for each teacher. Differences between the mean frequency of use measures for each lesson area were tested for statistical significance* separately for each teacher classification system (homogeneous vs. heterogeneous classes, small vs. large classes, and top-ranked vs. bottom-ranked teachers). Mean differences were tested by t-tests with degrees of freedom dependent on the tenability of the hypothesis of homogeneous variances.

Table VII shows which categories discriminated among the three teacher classifications, and the probability levels are given for that subgroup which used these categories significantly more than the other. It can be seen from table VII that teachers with homogeneous classes used three of the eight main Teaching-Techniques categories more than did the teachers with heterogeneous classes. These three areas involved Feeling-Tone, Guidance, and Motivation. The teachers with heterogeneous classes did more with the Teacher-Centered activities in which the children were not involved than did the teachers with homogeneous classes. A look at the details in table VII shows that the teachers with homogeneous classes used more the type of Control in which a child is told to conform (Ct) or warned not to do something (Cw), more of the Feeling-Tone contacts in general (F), gave the children more personal admiration or recognition (Fa), did more in the way of participating in a game with the children (Fc), did more Motivating in general, and specifically, more with trying to

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* Since this was an exploratory study, a significance level of .20 was accepted.

TABLE VII

DIRECTION AND PROBABILITY LEVEL OF DIFFERENCES IN FREQUENCY OF USE OF TEACHING-TECHNIQUES (Based only on fall protocols.)

Category That Discriminates	Teacher Classifications					
	Homogeneous vs Heterogeneous Teachers N=26		Small Class vs Large Class Teachers N=14		Top-ranked vs Bottom-ranked Teachers N=14	
	greater frequency	probability level	greater frequency	probability level	greater frequency	probability level
Tells to behave (CT)	Homo	.20				
Supportive warning (CW)	Homo	.20				
Total Feeling Tone (F)	Homo	.05			Top	.05
Personal compliment (FA)	Homo	.01			Top	.10
Plays with children(FC)	Homo	.20				
Personal recognition (FR)					Top	.10
Total Guidance (G)	Homo	.05			Top	.20
Verbal assistance (GA)	Hetero	.10				
Explains concept (GE)					Top	.20
Guiding questions(GQ)					Top	.20
Total Motivation (M)	Homo	.05				
Shows cause and effect (ME)	Homo	.05				
Appeals to interests (MI)			Small	.20		
Praises (MP)					Top	.10
Urges to work (MU)	Homo	.20				
Non-verbal assistance (NA)	Hetero	.10				
Physical Guidance(NPG)	Homo	.20			Top	.10
Writes on board, etc. (NW)					Top	.20
Introduces next lesson (SI)			Small	.10		
Sends on errand (SS)					Top	.05
Total teacher-centered (T)	Hetero	.20	Large	.20	Bottom	.20
Does things herself (TH)			Large	.05	Bottom	.20
Writes own records(TW)	Hetero	.10	Large	.05		

help the children see the reason for something (Me), more urging to get started or continue work (Mu), and used more physical guidance to help a child through needed movements (Npg). Conversely, with the more heterogeneous groups, it is likely that the teacher will give more Verbal Assistance in the sense of prompting or talking and singing along with the child (Ga), will do more with taking something from or giving something to a child, or setting up equipment for him in some way (Na), and will spend more time in class writing up the teacher's own records, making class materials, etc. (Tw), and doing more of the Teacher-Centered activities in general (T).

When teachers with small classes are compared with teachers in the large classes, fewer significant differences are seen. Teachers with small classes tended to do more with the Motivational approach of appealing to interests, fun, games, things they like (Mi), and more with that part of Structuring the Teaching Situation which has to do with introducing what comes next, and letting the children know in advance what's coming (Si). Teachers with large classes did more with the Teacher-Centered activities in general (T), and, specifically, more with the sub-categories in which the teacher does things herself instead of letting the children do them (Th), and in working during class on teacher records, plans, or class materials (Tw).

The picture for the top vs. bottom-ranked teachers was more like that of the picture of the homogeneous vs. heterogeneous classification. The top-ranked teachers, while they did not have the significantly more control problems that the homogeneous teachers had, did do more with the two major category areas of Feeling-Tone and Guidance and Reinforcement that also discriminated for the homogeneous class teachers. The bottom-ranked teachers did more with the major category of Teacher-Centered activities; this was also used most by the teachers with heterogeneous classes. The details in table VII show that the top-ranked teachers did significantly more with developing a good Feeling-Tone in their classes (F), especially in the area of giving personal compliments or recognition for things the children did that are not connected with lessons (Fa) (i.e.--went out of the way to notice what the children did), and took time to give each child some sort of a personal greeting, smile, or look (Fr). These teachers also did more with Guidance and Reinforcement in general (G), especially in explaining and building concepts (Gc), and asking guiding questions to get a child to think things out for himself (Gq). The only technique of motivation that these teachers used more was giving praise or reward (Mt). They also gave more physical guidance (Npg), did more writing on the board or on children's papers (Nw), and sent the children out of the room on errands more (Ss). The bottom-ranked teachers tended to do more in the Teacher-Centered categories in general (T) as has already been mentioned, but specifically they did more in the area in which the teacher does things herself instead of letting the children do it (Th). It should be noted here that within the homogeneous grouping in these fall observations as table VI shows, there were four of the top-ranked teachers and two of the bottom-ranked; in the heterogeneous group, there were four of the bottom-ranked and one of the top-ranked teachers.

In addition to the analysis of the Teaching-Technique categories in general, it appeared that since the severely retarded (trainable) child may be hyperactive, easily distracted, perhaps over-stimulated by the group experiences, some further analysis of the problem of individual and group control should be made. The mean number of the control category frequency was computed per 20 minute periods for the 25 teachers who were involved in the three teacher classifications* and for each one of the teacher sub-groups within the classifications. Figure 2 shows that with this group of 25 teachers there were intervals of fewer control problems after the first period and a tendency to rise beyond the beginning level toward the end of the five 20 minute periods. When the teacher classifications are seen separately, figure 3 shows that the homogeneous group begins with almost twice the number of control problems as the heterogeneous class, but after a period of time, there was little difference between the two groups of teachers. Although it would appear that homogeneous grouping does not help reduce the number of needed control contacts, at least when the children first come to school, further analysis

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* For three teachers with heterogeneous classes, one of whom was also in the large-class group and one in the small-class group, the timing device did not work correctly and so these teachers were not included in this analysis. (One teacher of the 28 was not in any classification (see table VI).)

FIGURE 2

Mean number "control" contacts for 24 teachers per 20 minute periods in the fall.

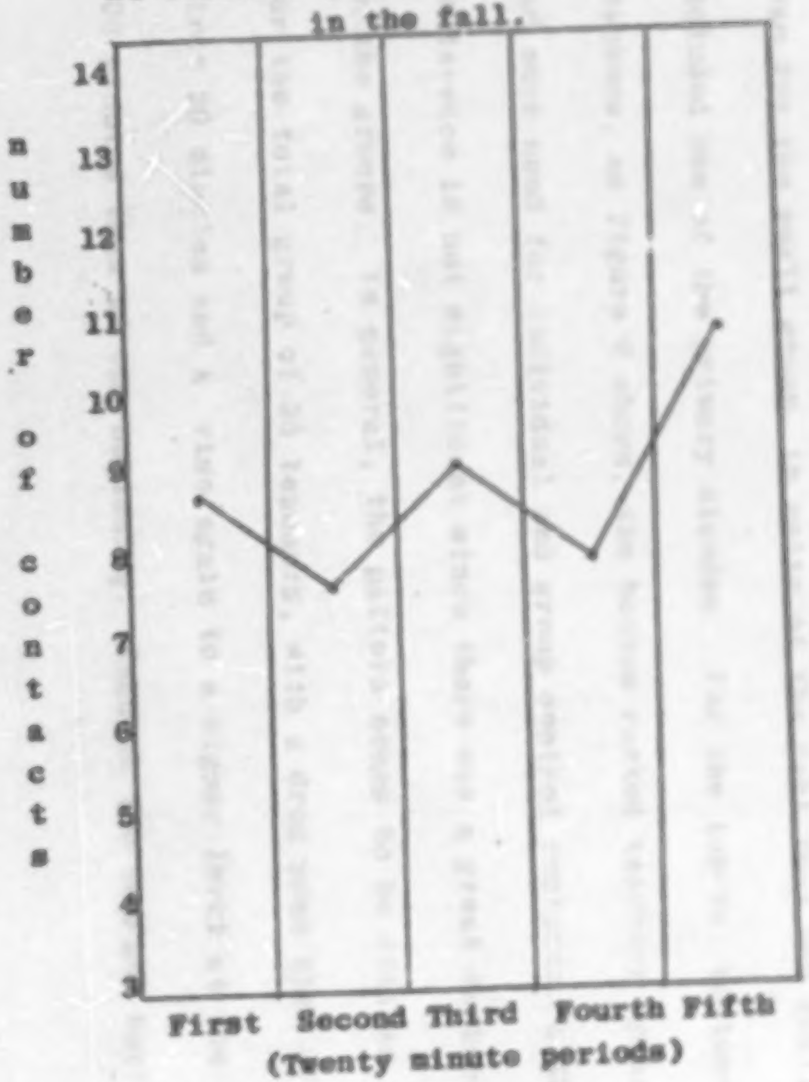
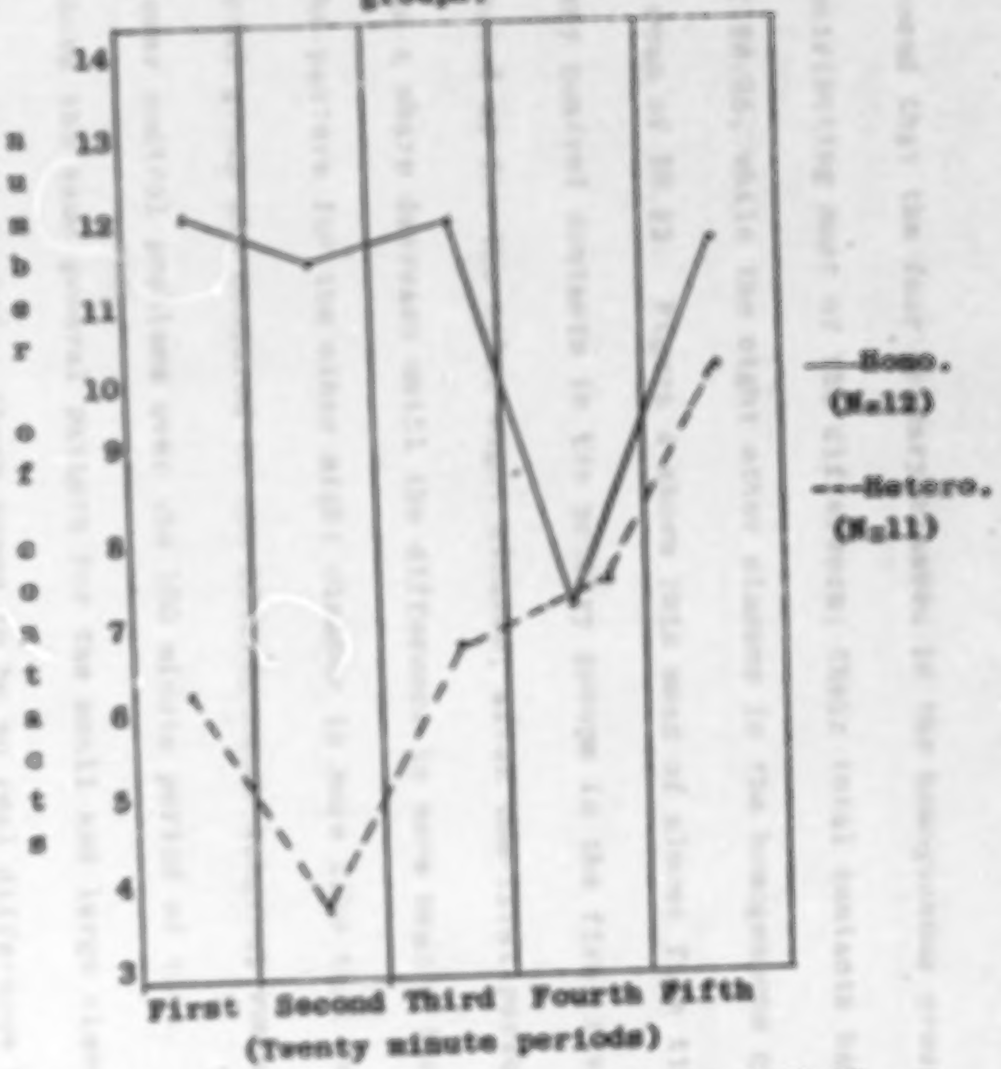


FIGURE 3

Mean contacts per 20 minute period, homogeneous vs. heterogeneous groups.



• Total mean, four primary classes: 98.25
Total mean, eight older classes: 28.22

showed that the four primary classes in the homogeneous group were contributing most of the difference; their total contacts had a mean of 98.25, while the eight other classes in the homogeneous group had a mean of 28.22. Figure 4 shows this mean of almost five times as many control contacts in the primary groups in the first five minute period as for the other eight classes; after the first period there was a sharp decrease until the difference is more nearly two to one. The pattern for the other eight classes is more like that for the total group and compared to the heterogeneous subgroup would indicate fewer control problems over the 100 minute period of time. Figure 5 shows the same general pattern for the small and large classes as for the group as a whole; there seems to be no real difference between the two groups although there was some tendency for more control contacts at the beginning and end of the 100 minute period for the large group than for the small group, in spite of the fact that the small group included one of the primary classes. For the top-vs. bottom-ranked teachers, as figure 6 shows, the bottom ranked teachers apparently had more need for individual and group control contacts, although the difference is not significant since there was a great variability within the groups. In general, the pattern seems to be similar to that for the total group of 25 teachers, with a drop some time after the first 20 minutes and a rise again to a higher level at the end of the 100 minutes than at the beginning. Each of the top-and bottom-ranked

FIGURE 4

MEAN NUMBER CONTROL CONTACTS PER 20 MINUTES
FOUR PRIMARY CLASSES VS EIGHT OLDER, IN HOMOGENEOUS GROUP

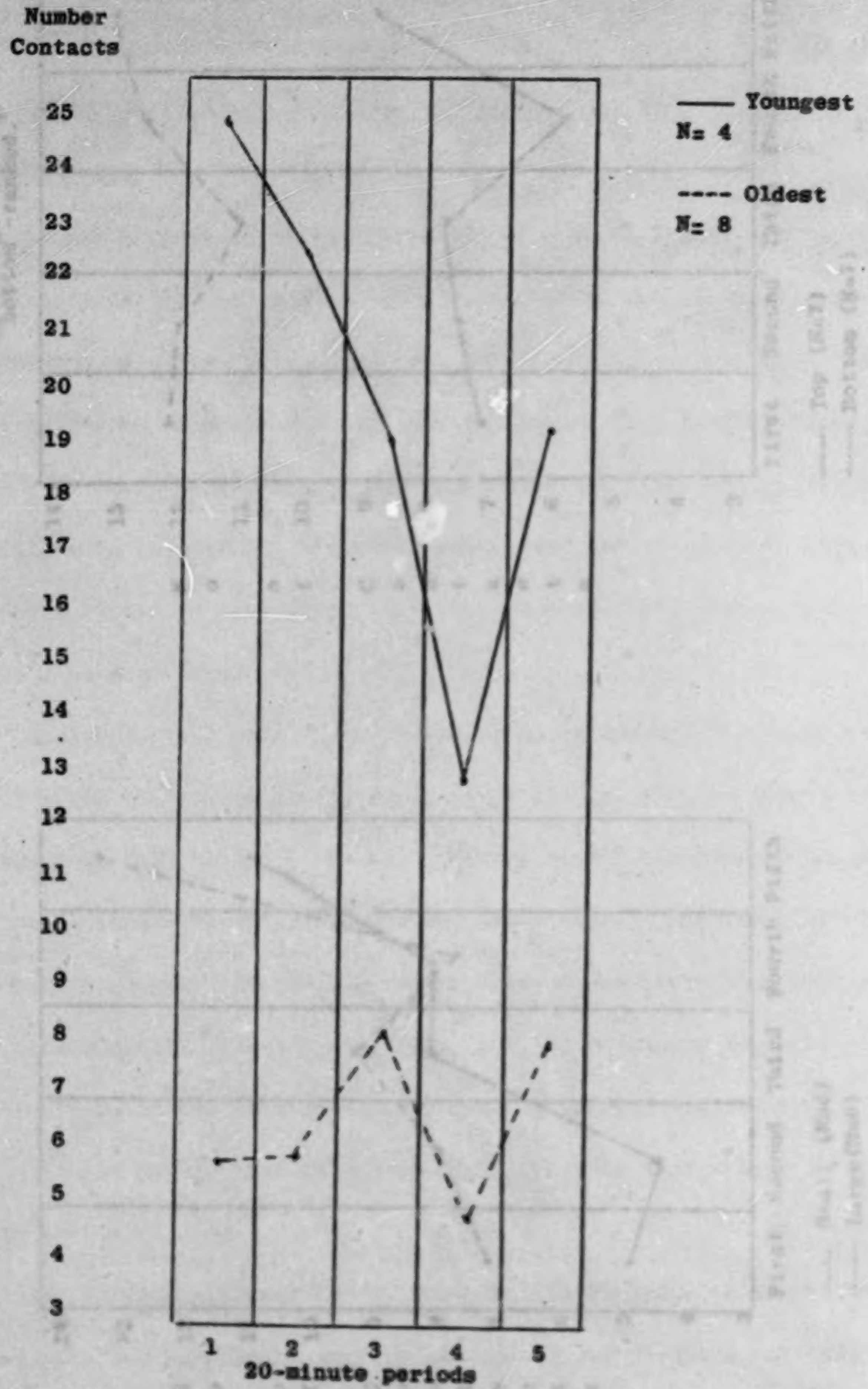


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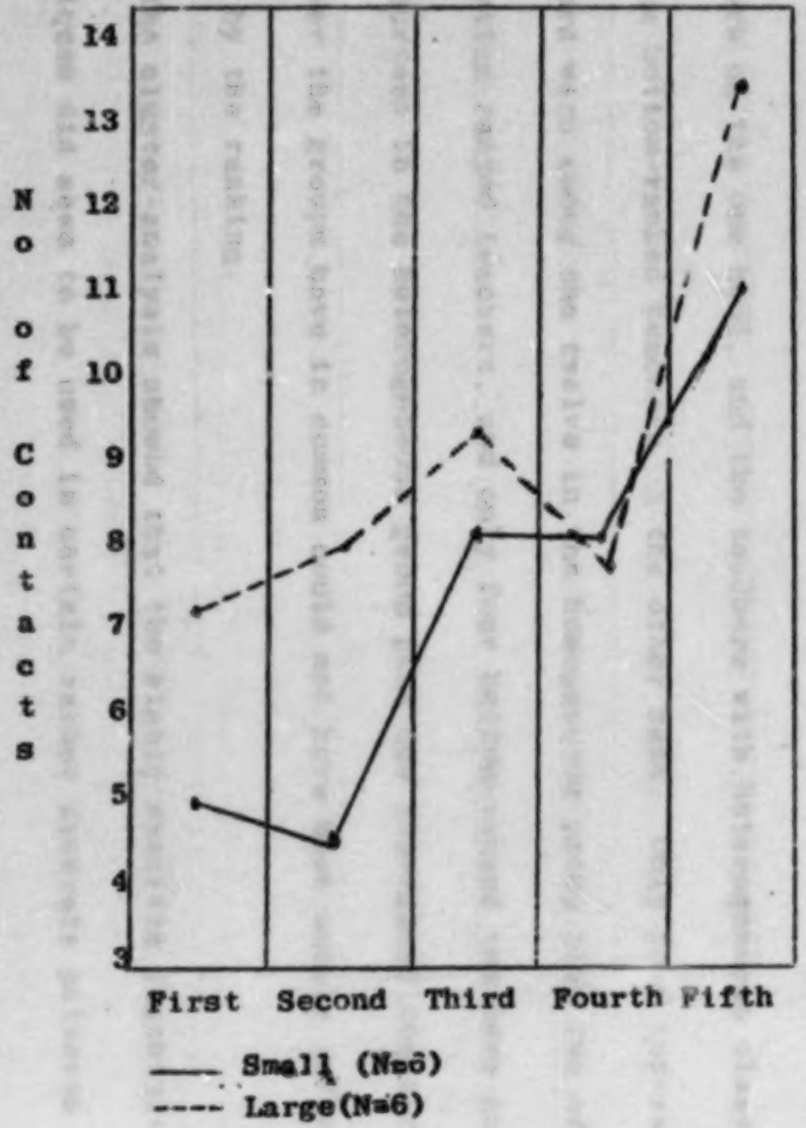
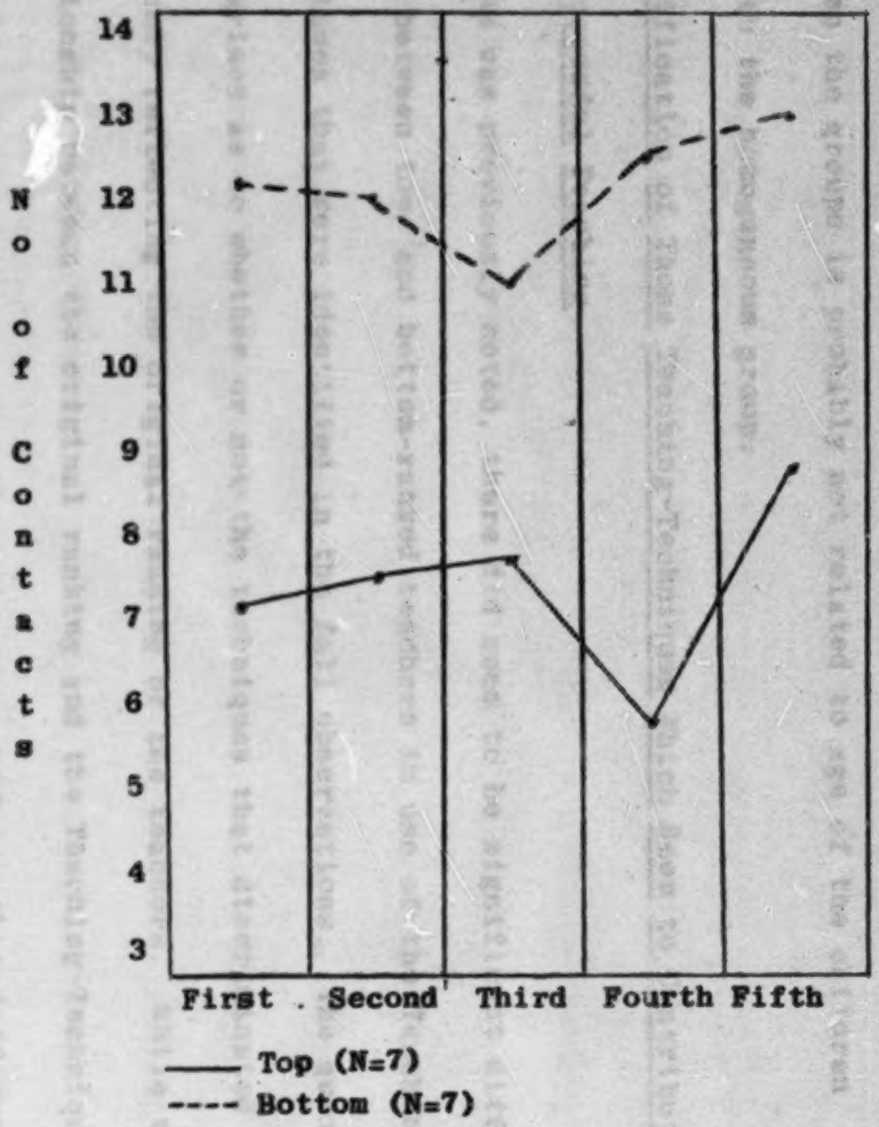
FIGURE 5
Mean contacts per 20 minute period,
small vs. large groups.



Number of primary classes: Small 1; Large 0.

FIGURE 6
Mean number "control" contacts per
20 minute period, "top" vs.
"bottom"-ranked.



Number of primary classes: Top 1; Bottom 1.

teachers had one primary class in this measure; so the difference between the groups is probably not related to age of the children as with the homogeneous group.

Identification of Those Teaching-Techniques Which Seem to Contribute to Successful Teaching.

As was previously noted, there did seem to be significant differences between top- and bottom-ranked teachers in use of the Teaching-Techniques that were identified in the fall observations. The question arises as to whether or not the techniques that discriminated were only reflecting the original ranking of the teachers. While the relationship between the original ranking and the Teaching-Techniques was unavoidable in this study, there is some evidence that different factors were involved.

One suggestive point here is the close relationship between the results for the teachers with homogeneous classes and the top-ranked teachers on the one hand, and the teachers with heterogeneous classes and the bottom-ranked teachers on the other hand. Only four top-ranked teachers were among the twelve in the homogeneous group plus two of the bottom-ranked teachers, and only four bottom-ranked teachers among the fourteen in the heterogeneous group plus one top-ranked teacher. Whatever the groups have in common could not have been unduly influenced by the ranking.

The cluster-analysis showed that the highly specific Teaching-Techniques did seem to be used in certain rather discrete patterns that were related to areas of teaching problems. When the clusters were analyzed to discover if any differences existed between teachers ranked in top or bottom quartiles*, the only cluster for which the mean difference was large enough not to have been accounted for by chance at the .01 level (less than five times in 100) was cluster III, "building up a sense of personal worth in the children". This cluster is heavily loaded with the type of Feeling-Tone items which discriminated between top- and bottom-ranked teachers. The fact that only one of the clusters discriminated between top- and bottom-ranked teachers seems to be further indication of qualitative differences between the original ranking and the specific techniques as identified.

Another suggestive point is related to the basis for the rankings by the two observers. Notes on the cards that were used in the ranking system by the two observers showed that these rankings included more global factors such as consistency in handling the children, ability to get down to the children's level in presentation of lessons and lesson-activities, practicality of the program, concreteness of materials, balance between passive sitting and more active participation by the children, and general Feeling-Tone within the classrooms. Of the 43 Teaching-Techniques listed, only the Feeling-Tone area seems to be specifically reflected in the original rankings.

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* A composite score was computed for each teacher on each cluster by summing the standard scores of each variable in the cluster algebraically and using simple t-tests to determine significance of difference.

The specificity of the Teaching-Techniques, as defined, represents an effort to get beyond the more global criteria used in ranking teachers in this and other studies, to the type of specific detail that would help any teacher improve her own efficiency.

Because of the suggestion of qualitative differences between the original ranking by the two observers and the Teaching-Techniques identified, and because some degree of outside control was given to the ranking by the agreement in the two quartiles with the consultant's ranking, it was felt that in spite of the unavoidable relationship between ranking and identification of Teaching-Techniques in this study, detailed analysis of Teaching-Techniques and their relationship to skill in teaching was warranted in order to increase our understanding of the specific dynamics involved in teaching competency.

As a first step, it was necessary to determine how similar the two groups of teachers were. The same problems existed in this comparison that were mentioned in the section describing the participating teachers, in that complete information was not available. For the nine top-ranked teachers and the eight bottom-ranked who were in those quartiles either fall or spring, inspection of table VIII will show that the top-ranked teachers reported somewhat more professional preparation as seen in state certification and number of college degrees, and the bottom-ranked teachers reported somewhat more years of experience in regular teaching and in teaching these trainable

TABLE VIII

COMPARISON OF TOP-RANKED AND BOTTOM-RANKED GROUPS OF TEACHERS

		Top-ranked N = 9	Bottom-ranked N = 8
Certificate:	Elementary	4	4
	Secondary	3	
	Provisional		2
	Permit	2	2
College Degrees:	A.B.	6	2
	M.A.		2
	No degree	3	4
Years teaching regular classes:	0	1	2
	1-2	3	
	3-4	2	1
	5-6		
	7-9		2
	10-plus	3	3
Years teaching trainable children:	0	2	1
	1	2	1
	2	5	4
	3		1
	4-plus		1
Ages of teachers:	20-29	2	1
	30-39	3	2
	40-49	4	2
	50-59		3
Range of ages of children in the classes of these teachers:	7-9	3	1
	10-13	4	7
	14-plus	2	

children. Bottom-ranked teachers were also somewhat older than top-ranked teachers.

A second step involved comparison of the two groups of children in the classes of the top- and bottom-ranked teachers. For this comparison, only classes of those teachers who were in the quartiles both fall and spring were compared (five top-ranked, six bottom-ranked). Comparisons were made on the basis of age, I. Q., and type of handicap. A chi-square test was run on the frequencies falling under the different types of diagnostic categories. Table IX shows that the top-ranked teachers had a significantly greater proportion of cerebral palsied children, and children whose etiology had not been determined. There was no difference in Mongoloid or "other" categories. ("Other includes the other types of etiology which were comparatively rare.) The bottom-ranked teachers had a significantly greater proportion of brain injured children at the .06 level.

The t-test was used to compare differences between the two classes on I. Q., and chronological age variables. When I. Q.'s were compared, the mean for the children in classes of the top-ranked teachers was 40.35, and the mean for the children in classes of the bottom-ranked teachers was 38.64. The top-ranked teachers had children whose I. Q.'s were higher at a significance level of .10 (t=1.67; df=136). On chronological age, the mean in classes of top-ranked teachers was 13 years, 5 months, compared to a mean of 12 years, 1 month in classes of bottom-ranked teachers. The top-ranked teachers had children who were

TABLE IX

CHARACTERISTICS OF CHILDREN IN CLASSES TAUGHT BY TOP AND BOTTOM RANKED TEACHERS

Diagnostic Category	No. Children in Each Category		Chi-square Value	P
	Top	Bottom		
Mongoloid	22	28	.04	NS
Brain-Injured	13	29	3.57	.06*
Cerebral Palsy	4	0	4.79	.03**
Other	10	15	.32	NS
Unknown	14	3	9.32	.01**

* More B. I. children in classes of "bottom" teachers.

** More Cerebral Palsied and "unknown" children in classes of "top" teachers.

significantly older (t=3.37; df=134) at the .01 level.* It would appear then that the types of children these teachers were working with in the classrooms were not necessarily presenting the same problems in teaching for each of the two groups of teachers.

As a third step, the subcategories under each of the eight major categories were further refined in order to isolate even more detailed Teaching-Techniques. The five 20 minute observation periods in the spring were used for the analysis of differences between top- and bottom-ranked teachers in use of these highly specific Teaching-Techniques. The same F ratios and t-tests were used as with the original analysis of the fall data. A complete description of these revised categories is given in Appendix 1. The following description shows the level of significance for those items which discriminated at the specified levels of significance.

Top-ranked teachers did more:

.05 level of significance.

Ss 1. Sends child on errand out of room.
Fp 2. Teacher shows consideration for child, for his feelings, situation, ideas; may give sympathy.
Fl. Has one child be leader or helper, etc. for the day or for a particular activity.

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* However, table VIII shows that, for all the teachers who had been in either quartile at any time, the top-ranked teachers had a wider range of ages, in general, in their classes. Also, it should be noted that in the spring, when the fine detail analysis was made for the top seven and bottom seven teachers, the two teachers who were in the top quartile for the first time in the spring both had primary groups in a homogeneous setting; the differences in chronological age were much less in the spring when all seven teachers in both groups were compared.

F.	As a total category; Feeling-Tone in general; anything which would build up a child's feeling of acceptance, self-confidence, self-esteem, feeling of rapport.

.10 level of significance.

Fa 2.	Praises or gives recognition for something the child did, not related to lesson. (Done at home, brought to school, volunteered at school, etc.)
Fi 2.	Rejects child's original ideas not directed towards the lesson.
Gr.	Reminds, relates something new or unknown to a known.
Sa 1.	Gets children's attention before starting a lesson.
To 1.	Teacher goes out of the room alone, not with a child.

.20 level of significance.

Fa 1.	Admires or compliments the child on something personal; not related to performance or conditions in a lesson.
Fi 1.	Child's own original ideas acknowledged, accepted (not related to lesson).
Frg.	Greets child as he enters, or as teacher first sees him.
G.	The guidance area in general involving learning situations (reinforcement was a separate area in this refiniment of items).
Gq.	Asks guiding questions to stimulate memory, thinking, association.
Mpr.	Really praises, elaborates, to bring real feeling of success or achievement (not perfunctory).
Ngi.	Gestures used to acknowledge child's response or request.
Nge.	Gestures used for communication, without words.
Nvo.	Uses objects as visual aids (distinct from using movies, pictures, charts).
Rp.	Prompts the child, but then lets him continue by himself.
Si 1.	Tells what will come next.
Se 2.	Either asks the children what they want to do next, or gives a choice of activities.
Ss 2.	Sends child on errand inside room, to get or do something for the teacher, etc.

Bottom-ranked teachers did most (i.e.--top-ranked teachers did relatively little):

.05 level of significance.

Ia 2.	Rejects or ignores child's original response directed toward the lesson.

Mcd.	Teacher implies or expresses a doubt, tells child she wants to see _if_ he can do a test.
Mif.	Uses non-directive "would you like" in trying to motivate the child (probably more of a Feeling-Tone involved, since often does not really give a choice).

.10 level of significance.

Muq.	Tries to get child to respond to question or answer when called on.
Nas.	Gives direct, personal assistance to the child in some way; involves equipment since touching the child is not involved, nor giving or taking something.
Th 2.	Does activities about the room instead of letting the children do them (i.e.--pulling shades, closing doors, cleaning up, etc.).

.20 level of significance.

Cnb.	Complains and blames, in the sense of a negative approach that is no help to the child. (Probably related to poor Feeling-Tone in the class.)
T.	Teacher-Centered activities in general; teacher is doing things with no interaction with the children.
Th 1.	Gets out or puts away materials herself instead of having the children do it.

The general picture of a "good" teacher which emerges from all this, is one who is skilful in developing independence, initiative, self-reliance, and a feeling of personal worth in the children; who has a class where motivation is good, interest is high, the children's attention is held during a lesson, and the children get a real feeling of success. and confidence from their work; who encourages the children to do things for themselves, and yet gives adequate guidance at each step in learning; and who sets the limits so the children know what to expect and how to carry on.

The seeming contradiction, for the top-ranked teachers, in both accepting (Fi 1) and rejecting (Fi 2) volunteered responses by the children which were not related to the lesson may only imply that good teachers know when to accept and when to ignore comments by the children that might distract from the lesson.

Further study is needed to determine the extent to which "good" teaching, as indicated by the specific techniques discussed above, is related to or influenced by such factors as degree of professional training and age of the teachers, or type of handicap, I. Q. level, and chronological age of the children.

LESSON AREAS

Identification and Categorization of Lessons Taught.

Ninety-eight types of lessons were identified, and categorized under fifteen major areas. For this analysis, the 100 minute protocols for both fall and spring were used. As with the identification and categorization of Teaching-Techniques, this categorization grew out of material from the pilot study, with more details added from observation protocols of the 29 classes in the study itself.

Some types of lesson-areas (or areas of learning) seemed relatively discrete; however, correlation and integration were used by the teachers to help make the material more meaningful to the children. Therefore, this categorization should be considered more a means of facilitating the handling of the data than a precise definition of discrete learnings.

Following is a brief outline of the lesson-areas as identified and categorized in this study, with an indication of the amount of use of each lesson-area.

	Lesson-Areas Categories	No. Times Used[1]	Total Weighted Emphasis[2]
AA:	Arithmetic Concepts		
	a. Numbers	151	407
	b. Clock and time	21	43

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[1] Lesson-area was used in some way this many times, by all 29 teachers in fall and spring observations combined.

[2] Amount of emphasis as seen in total weighted scores, when 1 point was assigned for "incidental" approach, 3 points for a "slightly developed" approach, and 5 points for a fully developed lesson. (See pp. 69-70 for a more detailed description of the weightings.)

	No. Times Used	Emphasis
c. Calendar	14	52
d. Measurement	5	21
e. Money	9	15
f. Ages (and how old)	4	10
g. Telephone	5	17
AC: Arts and Crafts		
a. Coloring	23	89
b. Drawing, painting, clay, etc.	24	78
c. Woodwork	---	---
d. Pasting and cutting	21	75
e. Making crafts objects	10	46
f. Stencils and/or tracing	10	34
D: Dramatization		
v. Using gestures in songs, etc.	55	153
w. Acting out a story or song	5	15
x. Dramatic play (make-believe)	18	54
y. Puppets	---	---
z. Shadow play	---	---
HS: Health and Safety		
a. Nutrition period	37	163
b. Foods (which to eat, etc.)	38	104
c. Rest	25	65
d. Teeth	8	12
e. Immunization and disease	26	28
f. Sanitation (washup, nose blowing)	55	97
g. Safety	26	44
h. Posture	43	52
i. Getting a drink	14	24
LD: Language Development		
a. Speech drills	67	129
b. Talking period (and sharing)	90	311
c. Writing	56	174
d. Reading	69	223
e. Story period	35	129
f. Roll call	32	148
g. Listening skills	38	46
h. Unison speaking	70	208
j. Spelling	14	26
k. "Reading" pictures	62	174

	No. Times Used	Emphasis
MM: Music		
a. Singing	110	393
b. Rhythms (dancing, marching)	18	74
c. Clapping and keeping time	17	43
d. Rhythm instruments	3	15
e. Appreciation (listening)	20	69
OE: Occupational Education		
v. Planning day's work	10	48
w. Following printed directions (recipes, etc.)	7	19
x. Learning to use tools	9	23
y. Work habits (careful, neat, clean up, finish up, keep busy, work slowly or carefully, etc.)	157	266
z. Kinds of jobs	4	10
PA: Practical Arts		
a. Cooking	2	6
b. Sewing	2	6
c. Dishwashing	5	7
d. Gardening	---	---
e. Cleaning	2	6
f. Setting table	7	27
g. Chores around the room (daily dusting, feeding pets, watering flowers, etc.)	12	42
h. Preparing foods	3	13
i. Encouraging children to help at home	10	26
SH:f. Serving and clearing table	14	24
PE: Motor Development		
a. Games	25	99
b. Skills (using equipment)	22	72
c. Manipulative skills (fine coordination)	93	255
d. Finger plays	11	41
e. Free play	40	165
f. Exercises	17	52
g. Outside play	18	88
S: Socialization		
u. Social techniques (politeness, introductions, etc.)	89	135

	No. Times Used	Emphasis
v. Respect for property of others	12	12
w. Sharing	18	20
x. Taking turns	78	82
y. Getting along with people	35	43
z. Helping others	65	73
SC: Science Concepts		
a. Pets and tame animals	28	58
b. Growth of plants, seeds, leaves, etc.	14	30
c. Nature study (animal, bird, insects)	17	43
d. Magnets and other physical forces	---	---
e. Weather	38	65
SH: Self-Help		
a. Washing	36	106
b. Grooming	35	77
c. Toileting	45	109
d. Dressing	47	79
e. Eating	23	39
g. Tooth brushing	2	10
SS: Social Studies		
a. Learning about home and community	37	76
b. Holidays, flag, etc.	43	155
c. Transportation	---	---
d. Chapel, grace, etc. (religion)	64	248
e. Month, day, week (names and concepts)	25	73
f. Conservation	---	---
g. Learning own names and addresses	7	29
h. Fire drill (really belongs with health and safety)	2	10
ST: Sensory Training		
x. Color discrimination	86	209
y. Use of visual and auditory discrimination and memory	98	266
z. Training other senses besides sight and hearing	49	107
TS: Mental Development (Thinking Skills)		
u. Creative (letting children do things their own way--not structured entirely by teacher)	3	5
v. Repeating from memory or something just heard	45	129

	No. Times Used	Emphasis
w. Imagination and memory	2	4
x. Concept building	98	196
y. Problem solving (doesn't just tell children something, but tries to get them to figure it out)	44	94
z. Following directions (errands within the room, as well as outside of room)	154	289

The above outline shows that more extensive experiences were given the children in some lesson-areas than others. Eight types of lessons were used in some way 90 or more times in the 200 minutes of combined observations; Numbers, Singing, Following Directions, Visual and Auditory Discrimination, Work Habits, Concept Building, Manipulative Skills, and Talking Time; all of these lesson-areas except Concept Building were also among the eight most emphasized. No direct lessons were observed during these 200 minutes in seven of the areas. Appendix 2 gives a more detailed account of the types of activities included in each specific category.

Investigation of Relative Emphasis Being Given to the Different Lesson-Areas.

The number of times a topic is used is not necessarily an adequate criterion of the amount of emphasis placed on any particular lesson-area. Therefore, in order to obtain a more qualitative measure of the amount of emphasis, weights were assigned to each lesson-area on the following basis: One point was given for what was considered "incidental teaching", where a topic was just mentioned one or more times, or the concept of "practise was involved when a child was doing something but was receiving no help or instruction from the teacher. Three points were given if some short instruction, explanation, discussion, or demonstration was done; these were termed "slightly developed" lessons. Five points were given if the lesson was either fully developed as a sub-lesson, or ran all through a stated lesson period, or was considered the major lesson period (i.e., "now we will have our music"); these were termed "fully developed" lessons.

To determine the relative amount of emphasis being given to the detailed lessons and to the 15 major lesson categories by the 29 teachers, all of the weighted scores were totaled for fall and for spring, and the lesson-areas were ranked according to total amount of emphasis. Results for each specific lesson-area for fall and spring combined have been shown with the preceding list of categories. The results for the 15 major categories are shown in Table X.

The rank-order correlation for fall and spring was beyond the .01 level of significance. It can be seen from table X that Language Development consistently leads in amount of emphasis though there was somewhat less total weight given to it in the spring than in the fall. Practical Arts received the smallest amount of emphasis.

As a second step in this analysis, the sub-groups within each of the three teacher classifications were compared as to their relative emphasis on each major lesson category by ranking the major lesson-areas for each group of teachers according to total weight or emphasis for each type of lesson. (Rank-order correlations comparing teachers

TABLE X

RANK-ORDER OF MAJOR LESSON-AREAS ACCORDING TO TOTAL WEIGHTS, OR AMOUNT OF EMPHASIS, FOR ALL 29 TEACHERS

FALL			SPRING		
Rank	Lesson Area	Weight	Rank	Lesson Area	Weight
1.	Language Development (LD)	834	1.	Language Development (LD)	789
2.	Motor Control (PE)	434	2.	Mental Development (TS)	451
3.	Sensory Training (ST)	377	3.	Motor Control (PE)	395
4.	Mental Development (TS)	331	4.	Music (MM)	372
5.	Social Studies (SS)	327	5.	Sensory Training (ST)	371
6.	Music (MM)	305	6.	Health & Safety (HS)	370
7.	Arithmetic Concepts (AA)	305	7.	Social Studies (SS)	279
8.	Health & Safety (HS)	298	8.	Arithmetic Concepts (AA)	275
9.	Self-Help (SH)	241	9.	Self-Help (SH)	222
10.	Socialization (S)	214	10.	Occupational Education (OE)	214
11.	Occupational Education (OE)	211	11.	Socialization (S)	201
12.	Arts & Crafts (AC)	187	12.	Arts & Crafts (AC)	155
13.	Dramatization (D)	137	13.	Dramatization (D)	126
14.	Science Concepts (SC)	87	14.	Science Concepts (SC)	105
15.	Practical Arts (PA)	59	15.	Practical Arts (PA)	96

with homogeneous vs. heterogeneous classes, teachers with small classes vs. large classes, and top-ranked vs. bottom-ranked teachers were computed. All correlations for all the sub-groups of teachers showed a .01 level of significance.. This consistency in lesson emphasis probably reflects the in-service training provided for all the teachers of trainable children twice a year in Tennessee.) To compare the amount of relative emphasis within teacher groups, analysis was done on the arbitrary basis of considering a one quartile difference up or down in rank (a four point or more difference in rank, since there are 15 major lesson-areas) as a "significant" difference.

With this measure, table XI shows that homogeneous classes tended to put more emphasis on Arithmetic Concepts (AA) in the fall, and Health and Safety (HS) in the spring, while in the heterogeneous classes, there was more emphasis on Social Studies (SS) in the fall and Thinking Skills (TS) in the spring. For the small vs. large classes, the teachers with small classes seemed to put relatively more emphasis on Sensory Training (ST) and Social Studies (SS) in the fall, and Arithmetic Concepts (AA) in the spring; with large classes, the relative emphasis was more on Music (MM) and Health and Safety (HS) in the fall, and Mental Development (TS) in the spring.

Top-ranked teachers, according to this measure, tended to put more emphasis on Social Studies (SS) and Occupational Education (OE) in the fall and Health and Safety (HS) in the spring. The bottom-ranked teachers emphasized Sensory Training (ST) and Motor Development (PE) more in the fall and Arts and Crafts (AC) in the spring. The patterning

TABLE XI

LESSON-AREAS WITH A ONE-QUARTILE OR MORE DIFFERENCE IN RELATIVE EMPHASIS WITHIN EACH GROUP

TEACHER GROUPS	FALL	SPRING
Homogeneous	AA (Arithmetic Concepts) (4)	HS (Health & Safety) (3.5)
Heterogeneous	SS (Social Studies) (4)	TS (Mental Development) (5)
Small Class	ST (Sensory Training) (5) SS (Social Studies) (11)	AA (Arithmetic Concepts) (5)
Large Class	MM (Music) (4) HS (Health & Safety) (5)	TS (Mental Development) (5)
Top-ranked	SS (Social Studies) (4) OE (Occupational Educ.) (6)	HS (Health & Safety) (5)
Bottom-ranked	ST (Sensory Training) (4) PE (Physical Educ.) (7)	AC (Arts & Crafts) (4)

of all these results, including differences in fall and spring, would suggest that in spite of the overlapping aspects of the three classifications (i.e., teachers who are in more than one) some sort of discreteness does exist among the various classifications in this measure. The relationship of these differences to background of the teachers and type of children in the classes needs investigation.

Amount and Type of Individualization of Instruction.

One of the reasons that class size is kept relatively small for any type of handicapped child is the need to give individual help in learning. As part of the exploratory function of this project, a study was made of the amount and type of individualization of instruction being used.

For this analysis, it was noted, for each lesson-area a teacher taught, whether one child, two to three children, a real sub-group, or the class as a whole was involved. Since the three teacher classifications described earlier included all but one teacher (see table VI), the results of this analysis are presented in the more meaningful terms of use by these comparative groups (teachers with homogeneous classes vs. teachers with heterogeneous classes, teachers with small classes vs. teachers with large classes, and top-ranked vs. bottom-ranked teachers). Table XII summarizes these results.

For all three teacher classifications, the teaching seems to have been individualized to a great extent; even more teaching was directed to one child at a time than to the class as a whole, with relatively

TABLE XII

FREQUENCY OF USE OF INDIVIDUAL INSTRUCTION BY TYPE OF CLASS

TYPE OF CLASS	NO. OF CHILDREN		WORKS WITH 1 CHILD	WORKS WITH 2-3 CHILDREN	WORKS WITH REAL SUB-GRP.	WORKS WITH WHOLE CLASS	TOTAL LESSONS	DIFF. 1 CHILD & WHOLE CLASS
Homo	12		460	6	1	399	866	61
Hetero	12		432	7	7	292	738	140
		Diff.	28	1	6	107	128	
Small	7		202	5		138	345	64
Large	7		233	3	4	173	413	60
		Diff.	31	2	4	35	68	
Top	7		297	2	4	214	517	83
Bottom	7		246	4	2	215	467	31
		Diff.	51	2	2	1	50	

little sub-grouping of any type. For the comparative teacher groups in each classification, it appears that homogeneous class teachers did more with both whole-class and one-child approaches when compared to the heterogeneous class group, but the relative difference was greater in the whole-class approach; thus, although the homogeneous class teachers used more one-child lessons than whole-class lessons, relatively more of those lessons the heterogeneous class teachers did use were done in one-child situations. There was little difference between small class and large class teachers in degree of individualization of instruction, since both used relatively more one-child lessons than whole-class; the large class teachers taught more lessons in general, and thus, had more of both types of instruction. Top-ranked teachers did more with the one-child approach than did the bottom-ranked teachers, with no difference between the two groups in use of whole-class lessons.

Another step in analysis of individualization of instruction involved determining which lessons seemed to be used more in either the one-child or the whole-class approach. Table XIII shows the number of times these two approaches were used for those major and/or subcategories, in which there was at least a 10 point difference. The following results were found:

One-child Approach:

1. Arithmetic Concepts in general, although it is apparent that the one sub-category of "numbers" accounted for most of the difference.

TABLE XIII

LESSON AREAS WHERE DIFFERENCE IN FREQUENCY OF USE BETWEEN INDIVIDUAL AND WHOLE-CLASS INSTRUCTION WAS MORE THAN 10 POINTS

LESSON AREAS	WORKS WITH ONE CHILD	WHOLE CLASS IS INVOLVED
Arithmetic concepts (AA)	90	45
numbers (AA:a)	71	36
Dramatization (D)	12	45
using gestures in songs (D:v)	2	38
Health & Safety (HS)	83	53
nutrition period (HS:a)		17
sanitation (HS:f)	32	3
Language Development (LD)	148	159
speech drills (LD:a)	29	6
writing (LD:c)	35	10
reading (LD:d)	31	12
story period (LD:e)	1	14
roll call (LD:f)		18
unison speaking (LD:h)		48
Music (MM)	5	87
singing (MM:a)	4	60
Occupational Education (OE)	110	31
work habits (OE:y)	102	25
Practical Arts (PA)	15	5
Motor Development (PE)	55	72
games (PE:a)		12
manipulative skills (PE:c)	42	13
exercises (PE:f)	1	12
Socialization (S)	153	30
social techniques (S:u)	48	14
taking turns (S:x)	47	7
getting along with people (S:y)	21	3
helping others (S:z)	24	2
Self-help (SH)	89	22
washing (SH:a)	14	3
toileting (SH:c)	23	5
dressing (SH:d)	23	6
Social Studies (SS)	36	64
home and community (SS:a)	15	1
holidays, flag, etc. (SS:b)	7	26
chapel, Grace, etc. (SS:d)	5	26
Sensory Training (ST)	131	57
color discrimination (ST:x)	38	21
visual/auditory discrimination and memory (ST:y)	67	30
senses other than sight/hearing (ST:z)	26	6
Mental Development (TS)	135	59
repeating from memory (TS:v)	23	7
following directions (ST:z)	56	16

2. The sub-category of personal "sanitation", involving things like washing up before handling food, blowing nose, etc. (under Health and Safety).
3. Lessons under Language Development that involved "speech drills", "writing", or "reading".
4. The sub-category of "work habits" (under Occupational Education).
5. Practical Arts in general (as a major category).
6. Manipulative skills as a sub-category (under Motor Development).
7. All of the major category of Socialization, but especially lessons in "social techniques", "taking turns", "getting along with others", and "helping others".
8. All of the major category of Self-Help, especially learning to "wash", "toilet", and "dress" themselves.
9. The sub-category of "home and community" (under Social Studies). (This one category was brought up mostly during children's talking time when one child mentioned something and the teacher would give further explanations and elaboration.)
10. The major category of Sensory Training.
11. The major category of Thinking Skills, especially lessons on "repeating from memory", and "following directions".

Whole-class Emphasis:

1. The major category of Dramatization, especially "using gestures to songs".
2. Those lessons under Language Development which included "story period", "roll-call", and "unison speaking".
3. The major category of Music, especially "singing".
4. The sub-category of "games and exercises" (under Motor Development).
5. Lessons on "holidays or flags" (including flag salute) and lessons on "chapel or saying Grace" (under Social Studies).

The differences in these lesson-areas in individual vs. whole-class approach seem logical when the lessons involved are seen in detail; one conclusion would be, that although the teachers tended to do more work with the individual children in general, some lessons seem better suited to the whole class approach.

Relation of Homogeneous Grouping, Class Size, and Teaching Effectiveness to Amount and Type of Emphasis on the Different Lesson-Areas, and to the Way the Lessons Were Used.

Another part of the exploratory approach to the qualitative aspects of use of curriculum or lesson-areas involved a comparison on several variables of the three teacher classifications previously described. One question (or variable) was whether there were any differences between the sub-groups in the three teacher classifications in breadth of program, as seen in the number of different lesson-areas.taught. (This number was determined by counting each lesson-area once, and is herein referred to as "single" lessons.) A second question was whether these comparative sub-groups of teachers were using the same degree of integration or correlation of lessons during the observation period; this aspect was approached through a measure of the total number of lessons taught, since repetition of lessons would be involved here as compared to the number of "single" lesson-areas covered. (This measure if herein referred to as "repeated lessons".) A third question was that of differences in total amount of emphasis used with the lessons, as seen in total weighted scores. A fourth question involved differences in use of "incidental", "slightly developed", and "fully developed" approaches as seen in the respective weights of one, two, or three points assigned to each lesson-area. The possibility of differences in all of these variables from fall to spring was also investigated.

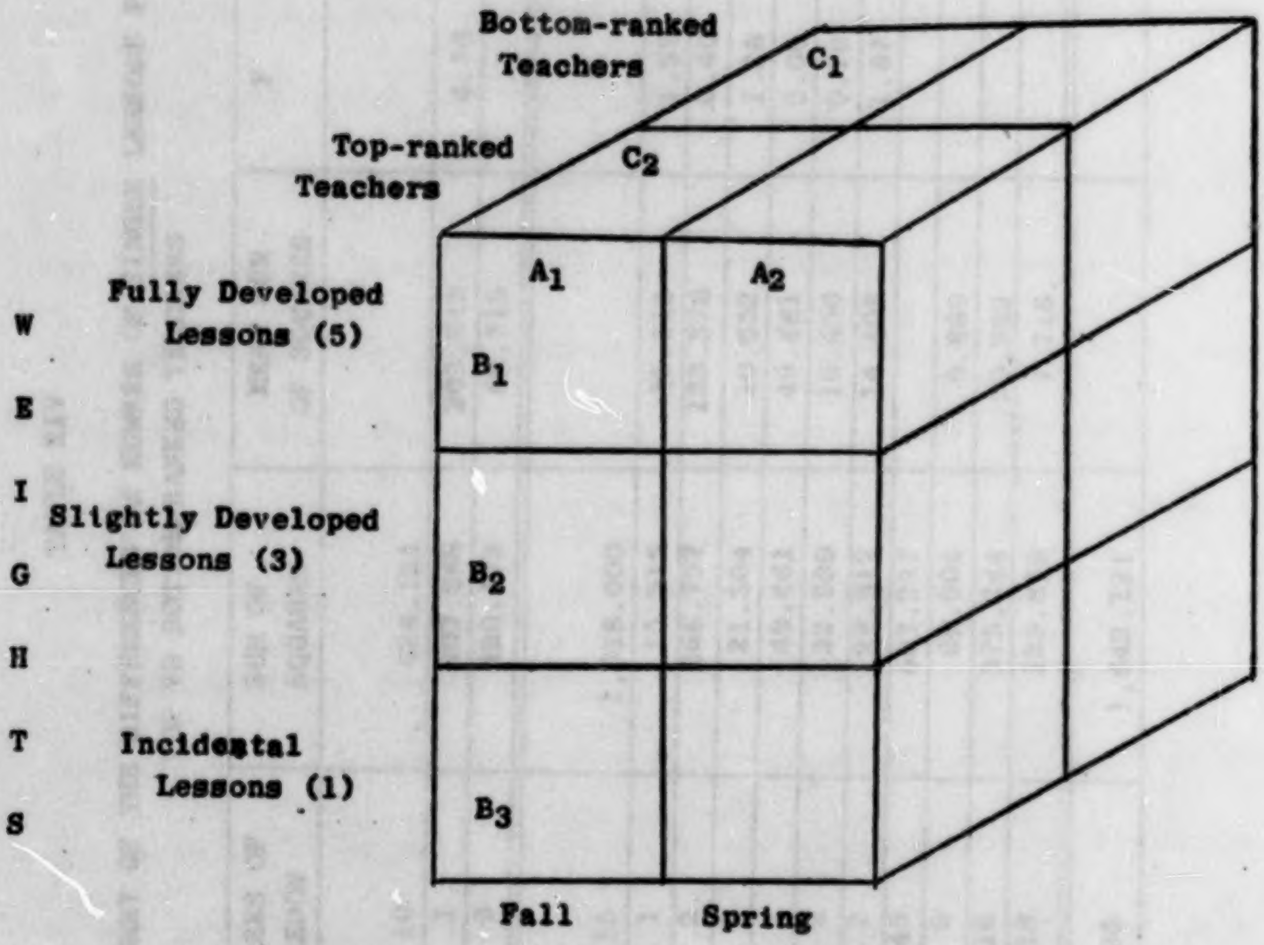
A type VI design (6) was used for this analysis; figure 7 shows this design. Results will first be discussed in detail for the top- and bottom-ranked teachers, and then a summary given for the other two classifications since lack of time prevented a complete analysis for the classifications of the homogeneous classes vs. heterogeneous classes and small vs. large classes.

For the five top-ranked and six bottom-ranked teachers who were in these ranks both fall and spring, the following results appeared:

For "single lessons" (i.e., investigation of breadth of program) table XIV summarizes the results. Both the second order and first order interaction effects were considered non-significant, and the design was analyzed for the main effects of the observation period lesson emphasis in quality of teaching (i.e., top- vs. bottom-ranked). The effects of the observation period (i.e., fall or spring) were considered non-significant and the effects of the lesson emphasis were significant. The effects of the quality of teaching were suggestive of top-ranked teachers consistently touching on more lesson-areas. The effects of lesson emphasis were further analyzed by means of the t-test to determine where the differences lay. It was found that all teachers did significantly more with "slightly developed" and with

FIGURE 7

Mixed Design, Type VI*


Bottom-ranked Teachers
C1
Top-ranked Teachers
C2
A1
A2
Fully Developed Lessons (5)
B1
Slightly Developed Lessons (3)
B2
Incidental Lessons (1)
B3
W E I G H T S
Fall
Spring

* Lindquist, *Design and Analysis of Experiments in Psychology and Education*, pp. 292-297.

TABLE XIV

SUMMARY OF THE DIFFERENCES IN NUMBER OF SINGLE LESSONS FOR TOP VS BOTTOM-RANKED TEACHERS

SOURCE	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	F	F.90	F.95
Between Subjects	10	624.121				
C	1	203.648	203.648	4.36	3.36	5.12
Error b	9	420.473	46.719			
Within Subjects	55	1,018.000				
A	1	15.515	15.515	1.57	3.36	5.12
B	2	266.757	133.378	6.40	2.62	3.55
AB	2	21.304	10.652	1.38	2.62	3.55
AC	1	49.481	49.481	5.00	3.36	5.12
BC	2	32.899	16.450	0.79	2.62	3.55
ABC	2	28.817	14.408	1.87	2.62	3.55
Error w	45	603.227				
Error 1w	9	89.004	9.889			
Error 2w	18	375.344	20.852			
Error 3w	18	138.879	7.716			
Total	65	1,642.121				

"incidental" teaching than with "fully developed" lessons as far as the average of the lessons was concerned; there was no significant difference between the incidence of "slightly developed" and "incidental" approaches.

An analysis similar to that for single lessons was done using the number of repeated lessons as a criterion measure (i.e., to find if any differences appeared between the two groups when amount of repetition of lesson-areas was taken into account). Table XV gives the results. The results were essentially the same as for the number of single lessons. However, with repeated lessons more areas were handled by "incidental" teaching than as "slightly developed" lessons, and still fewer areas were handled as "fully developed" lessons. The only difference was the lack of any indication that the top-ranked teachers repeated lessons more than the bottom-ranked teachers.

For weighted scores (i.e., total emphasis), the data were again analyzed by a type VI design. Figure 8 shows the design. The results are given in table XVI. While there was no second order interaction, it was found that the weighted scores for a given lesson area were dependent on whether the observation was made early or late in the school year (i.e., fall or spring), and whether the teacher was one of the top-ranked or one of the bottom-ranked. Due to this interaction, the design was not checked for over-all differences in average scores for season of observation or quality of instruction. Instead, the differences between weighted scores for top- and bottom-ranked teachers in

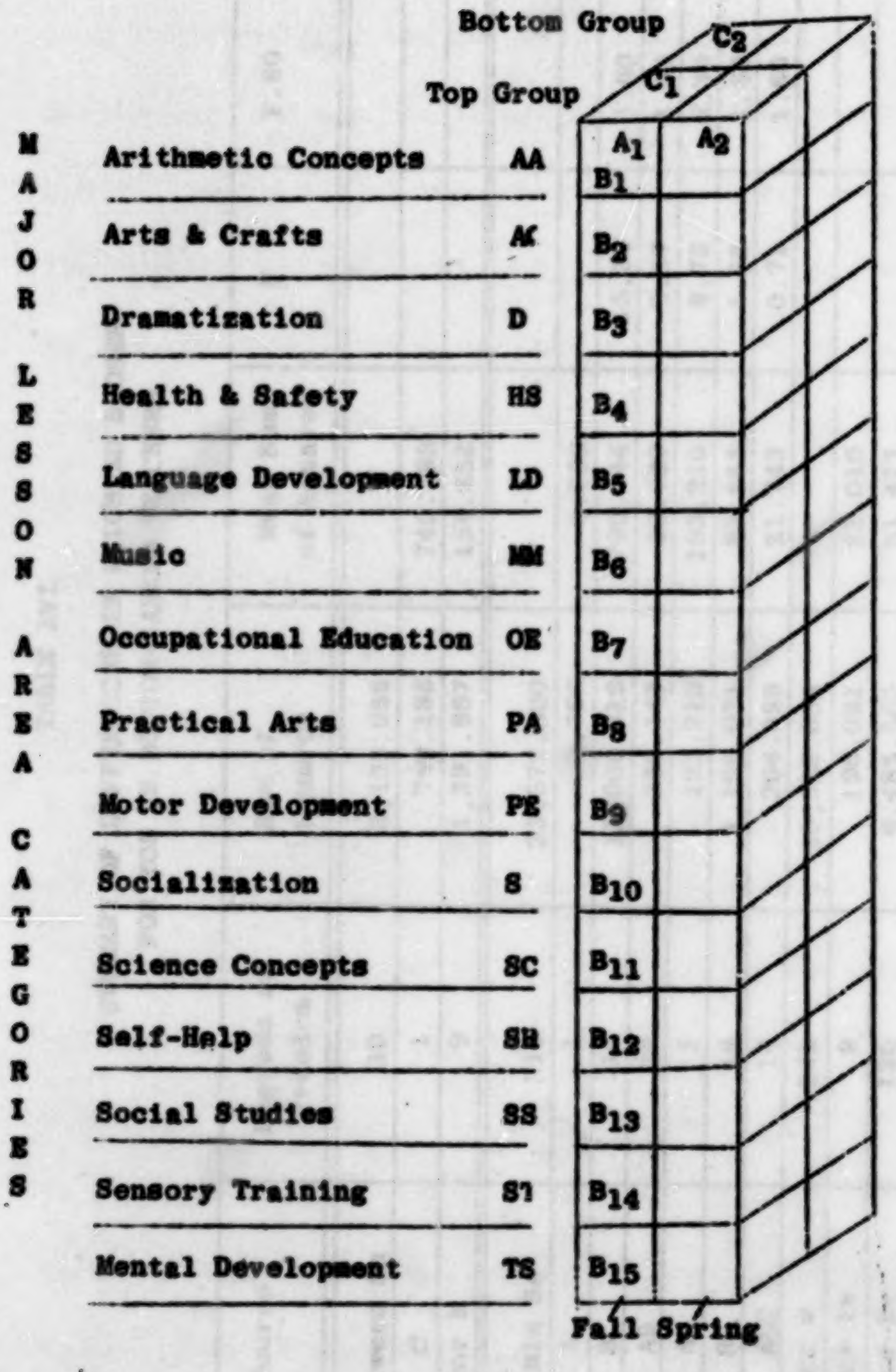
TABLE XV

SUMMARY OF DIFFERENCES IN NUMBER OF REPEATED LESSONS FOR TOP VS BOTTOM-RANKED TEACHERS

SOURCE	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	F	F.90	F.95
Between Subjects	10	285.273				
C	1	44.250	44.250	1.65	3.36	5.12
Error b	9	241.023	26.780			
Within Subjects	55	812.000				
A	1	1.515	1.515	0.45	3.36	5.12
B	2	333.364	166.682	10.50	2.62	3.55
AB	2	14.394	7.197	1.12	2.62	3.55
AC	1	3.397	3.397	1.00	3.36	5.12
BC	2	19.826	9.913	0.62	2.62	3.55
ABC	2	7.594	3.797	0.59	2.62	3.55
Error w	45	431.910				
Error 1w	9	30.421	3.380			
Error 2w	18	285.810	15.878			
Error 3w	18	115.679	6.427			
Total	65	1,097.273				

FIGURE 8

A STUDY OF THE SIGNIFICANCE OF DIFFERENCES FOR TOP VS BOTTOM-RANKED TEACHERS IN WEIGHTED SCORES FOR LESSON AREAS


Bottom Group
Top Group
C_2
C_1
A_1
A_2
MAJOR LESSON AREA CATEGORIES
Arithmetic Concepts AA B_1
Arts & Crafts AC B_2
Dramatization D B_3
Health & Safety HS B_4
Language Development LD B_5
Music MM B_6
Occupational Education OE B_7
Practical Arts PA B_8
Motor Development PE B_9
Socialization S B_{10}
Science Concepts SC B_{11}
Self-Help SH B_{12}
Social Studies SS B_{13}
Sensory Training ST B_{14}
Mental Development TS B_{15}
Fall
Spring

MIXED DESIGN--TYPE VI: Lindquist, *Design and Analysis of Experiments in Psychology and Education*, pp. 292-297.

TABLE XVI

SUMMARY OF DIFFERENCES IN WEIGHTED SCORES FOR TOP VS BOTTOM-RANKED TEACHERS

Source	Degrees of Freedom	Sum of Squares	Mean Sum of Squares	F	F.90	F.95
Between Ss	10	2,132.055				
C	1	740.188	740.188			
Error b	9	1,391.867	154.652			
Within Ss	319	23,572.200				
A	1	0.766	0.766			
B	14	11,060.619	790.044	15.35	1.60	1.83
AB	14	286.143	20.439	0.67	1.60	1.83
AC	1	193.210	193.210	8.78	3.36	5.12
BC	14	1,199.031	85.645	1.66	1.60	1.83
ABC	14	304.398	21.743	0.71	1.60	1.83
Error w	261	10,528.033				
Error 1w	9	198.091	22.010			
Error 2w	126	6,485.550	51.473			
Error 3w	126	3,844.392	30.511			
Total	329	25,704.255				

each major lesson-area was determined separately for the fall observations and for the spring observations. It was found that in the fall the top-ranked teachers put more total emphasis on Occupational Education (OE) and Social Studies (SS)--at the .05 level of significance, Practical Arts (PA) and Socialization (S)--at the .10 level, and Arithmetic (AA) and Health and Safety (HS)--at the .20 level of significance. In the spring the top-ranked teachers were again emphasizing the areas of Occupational Education--at the .05 level, Practical Arts--at the .10 level, and Health and Safety--now at the .05 level of significance. In addition there was more emphasis on Science Concepts (SC)--at the .05 level, Self-Help (SH)--at the .10 level, and Language Development (LD)--at the .20 level. Inspection of the sub-categories under these major areas showed that at times only one or two sub-categories were contributing to the differences. Since the sample of lessons taught (only 100 minutes in two days out of the school year) was so small, a more detailed analysis was not considered profitable.

Summary: The results for this teacher classification of top- vs. bottom-ranked teachers were given in some detail in order to show the possibilities of this particular statistical technique as one approach to analysis of data from classroom observations. Few significant differences were noted. One was, that top-ranked teachers consistently covered more lesson-areas. Another was, that regardless of whether the criterion measure used was the number of individual lessons taught or the number of lessons repeated, both top- and bottom-ranked teachers used the incidental approach more than the fully developed. With single lessons, there was no difference between "incidental" and "slightly developed" approaches; with repeated lessons, "incidental" teaching was done more than "slightly developed" teaching. This relationship held true in both the fall and spring observations. When total weighted scores (i.e., the total amount of emphasis) were considered, there were not only differences in amount of emphasis on lesson-areas between the two groups of teachers, but these differences varied from fall to spring.

Since the procedures used have been given in detail on the preceding section, only a summary will be given for the two teacher classifications of small vs. large classes and homogeneous vs. heterogeneous classes. Tables XVII through XXIII give the details. For the small vs. large classes, there were no differences between the two groups of teachers on the amount of emphasis given to lesson-areas or time of observation for single, repeated, or total weighted scores.

Teachers of homogeneous classes used lesson repetition less than teachers of heterogeneous classes regardless of the season when the observations were made or the amount of emphasis in the lesson. However, the teachers of homogeneous classes tended to repeat the lessons in an "incidental" fashion more in the spring than they had in the fall; with the teachers of heterogeneous classes, more emphasis in lesson repetition was placed on "slightly developed" lessons in the fall than in the spring.

All teachers in these two classifications (small vs. large classes

TABLE XVII

SUMMARY OF SINGLE LESSONS, SMALL CLASSES VS LARGE CLASSES

Source	df.	$\sum x^2$	s^2	F	F.90	F.95
Between Ss	13	601,155				
C	1	38.678	38.678	0.83	3.18	4.75
Error b	12	562.477	46.873			
Within Ss	70	1,603.833				
A	1	60.012	60.012	5.10	3.18	4.75
B	2	335.524	167.762	5.54	2.54	3.40
AB	2	112.666	56.333	10.06	2.54	3.40
AC	1	14.584	14.584	1.24	3.18	4.75
BC	2	54.000	27.000	0.89	2.54	3.40
ABC	2	24.667	12.334	2.20	2.54	3.40
Error w	60	1,002.380				
Error 1w	12	141.237	11.770			
Error 2w	24	726.809	30.284			
Error 3w	24	134.334	5.597			
Total	83	2,204.988				

TABLE XVIII

SUMMARY OF EFFECTS OF B AT A_2
SINGLE LESSONS, SMALL VS LARGE GROUPS

Source	df.	x^2	s^2	F	F.90	F.95
Between Ss	13	324.309				
C	1	2.881	2.881	0.11	3.18	4.75
Error b	12	321.428	26.786			
Within Ss	28	912.667				
B	2	394.047	197.024	10.09	2.54	3.40
BC	2	50.048	25.024	1.28	2.54	3.40
Error w	24	468.572	19.524			
Total	41	1,236.976				

TABLE XIX

SUMMARY OF REPEATED, OR TOTAL LESSONS
LARGE VS SMALL GROUPS

Source	df.	$\sum x^2$	s^2	F	F.90	F.95
Between Ss	13	960.143				
C: Large vs. Small Groups	1	0.762	0.762	0.009	3.18	4.75
Error b	12	959.381	79.948			
Within Ss	70	3,436.667				
A: Fall-Spring	1	146.466	146.466			
B: Weights	2	1,037.167	518.584			
AB	2	297.748	143.874	6.714	2.54	3.40
AC	1	29.772	29.772	0.945	3.18	4.75
BC	2	9.023	4.512	0.112	2.54	3.40
ABC	2	26.443	13.221	0.596	2.54	3.40
Error (w)	60	1,890.048	31.50			
Error (1)	12	394.429	32.869			
Error (2)	24	963.477	40.144			
Error (3)	24	532.142	22.172			
Total	83	4,396.810				

TABLE XX

SUMMARY OF DIFFERENCES IN WEIGHTED SCORES
LARGE VS SMALL GROUPS

Source	df.	$\sum x^2$	s^2	F	F.90	F.95
Between Ss	13	7,690.960				
C: Large vs. Small Groups	1	1.198	1.198	0.0018	3.18	4.75
Error b	12	7,689.762				
Within Ss	70	40,564.000				
A: Fall-Spring	1	15.436	15.436			
B: Weights	2	25,677.174	12,838.587			
AB	2	2,226.921	1,113.460	7.796	2.54	3.40
AC	1	485.754	485.754	1.864	3.18	4.75
BC	2	122.730	61.365	0.285	2.54	3.40
ABC	2	323.175	161.587	1.131	2.54	3.40
Error (w)	60	11,712.810				
Error (1)	12	3,126.143	260.512			
Error (2)	24	5,159.096	214.962			
Error (3)	24	3,427.571	142.815			
Total	83	48,254.96				

TABLE XXI

SUMMARY OF THE DIFFERENCES IN THE NUMBER OF SINGLE LESSONS FOR HOMOGENEOUS VS HETEROGENEOUS GROUPS

Source	df.	Σx^2	s^2	F	F.90	F.95
Between Ss	23	681.972				
C: Homo. Hetero.	1	75.11	75.11	2.723	2.95	4.30
Error b	22	606.862	27.584			
Within' Ss	120	2,766.000				
A: Fall-Spring	1	38.027	38.027			
B: Weights	2	876.264	438.132			
AB	2	104.514	52.257	6.214	2.43	3.21
AC	1	2.779	2.779	0.229	2.95	4.30
BC	2	10.014	5.007	0.201	2.43	3.21
ABC	2	3.764	1.882	0.224	2.43	3.21
Error (w)	110	1,730.638				
Error (1)	22	265.860	12.084			
Error (2)	44	1,094.722	24.880			
Error (3)	44	370.056	8.410			
Total	143	3,447.972				

TABLE XXII

SUMMARY OF REPEATED LESSONS
HOMOGENEOUS VS HETEROGENEOUS GROUPS

Source	df.	$\sum x^2$	s^2	F	F.90	F.95
Between Ss	23	1,357.638				
C: Homo. Hetero.	1	250.695	250.695	4.982	2.95	4.30
Error b	22	1,106.943	50.316			
Within Ss	120	7,370.334				
A: Fall-Spring	1	34.027	34.027			
B: Weights	2	3,259.764	1,629.882			
AB	2	240.431	120.216	5.354	2.43	3.21
AC	1	0.028	0.028	0.000	2.95	4.30
BC	2	13.846	6.923	0.142	2.43	3.21
ABC	2	21.681	10.840	0.482	2.43	3.21
Error (w)	110	3,800.557	34.550			
Error (1)	22	672.945	30.588			
Error (2)	44	2,139.724	48.630			
Error (3)	44	987.888	22.452			
Total	143	8,727.972				

TABLE XXIII

SUMMARY OF DIFFERENCES IN TOTAL WEIGHTED SCORES TEACHERS WITH HOMOGENEOUS CLASSES VS TEACHERS WITH HETEROGENEOUS CLASSES

Source	df.	Σx^2	s^2	F	F.90	F.95
Between Ss	23	12,469.306				
C: Homo. Hetero.	1	1,965.444	1,965.444	4.116	2.95	4.30
Error b	22	10,503.862	477.448			
Within Ss	120	67,476.000				
A: Fall-Spring	1	66.694	66.694			
B: Weights	2	42,405.514	21,203.757			
AB	2	1,992.264	996.132	6.288	2.43	3.21
AC	1	18.779	18.779	0.076	2.95	4.30
BC	2	500.014	250.007	1.097	2.43	3.21
ABC	2	91.930	45.965	0.290	2.43	3.21
Error (w)	110	22,400.305				
Error (1)	22	5,410.527	245.933			
Error (2)	44	10,020.472	227.738			
Error (3)	44	6,969.306	158.393			
Total	143	79,945.306				

and homogeneous vs heterogeneous classes) were not using the same degree of emphasis (i.e., incidental, slightly developed, or fully developed) in all the lesson areas, for single lesson, repeated lesson, or total-weight analysis (same finding as for top-vs bottom-ranked); the specific types of variation were not investigated with these two classifications because of lack of time.

In general, in these aspects of teaching, few differences seemed directly related to the type of teacher classification. There did seem to be more breadth to the program of the top-ranked teachers when compared to bottom-ranked, but no differences in the way the two groups of teachers handled these lessons; also, the top-ranked teachers seemed to give more total emphasis, though which major lesson-area the emphasis was in varied from fall to spring. Another difference was related to type of class grouping: Teachers with heterogeneous classes used more lesson repetition in general, and there were some differences between the two groups from fall to spring in the way the lesson repetition was handled (i.e., the incidental approach was used more in the spring than in the fall by the homogeneous-class teachers, and slight development used more in the fall than in the spring by teachers with heterogeneous classes).

There seemed to be variations in use of the incidental, slightly developed, and fully developed approaches for the teachers as a whole (i.e., no differences in comparative subgroups). Lack of time precluded a full investigation, but there were indications of differences in use of these three approaches according to type of lesson taught. Any study of the effects of teaching on these children's learning would need to take this problem into account.

Investigation of the Relationship Between Lesson-Areas and Type of Teaching-Technique Used.

Since there was a possibility that type of lesson might be one variable influencing use of the specific Teaching-Techniques discussed previously, this possibility was explored.

In this analysis, all of the Teaching Techniques used in the fall 100-minute period of observation were ranked according to frequency of use by all of the 29 teachers for each major lesson-area. A coefficient of concordance was obtained. (36, pp. 229-238).

There appeared to be no relationship between the type of lesson and the teaching techniques that were used. The coefficient of concordance when corrected for ties was 0.85. By the chi-square distribution, chi-square equals k(N-1)W; the coefficient of concordance of this value was found to be significant at the .005 level of significance. A relationship of this significance among all lesson-areas for the teaching techniques ranked from most to least in frequency of use indicates that the same teaching techniques were probably used to the same degree in the different lesson-areas.

CONCLUSIONS AND IMPLICATIONS

Introduction.

It must be remembered that this project was designed as an exploratory study of teaching procedures in trainable classes in one state. No hypotheses were set up or tested. The findings, therefore, can only be seen as an analysis of what was observed, not as "proof" of anything. It was hoped that where the results were presented in detail they would aid in estimating the value of the different analysis procedures. More types of analysis could have been done if time had permitted. Any conclusions that are stated should be accepted as tentative leads or way-pointers to further research. In the present stage of limited knowledge about trainable children and procedures for working with them in classroom situations, the findings from this study will be significant only as they shed light on some of the complexities involved.

Since one broad area of analysis involved Teaching Techniques, The findings that related to this aspect of the study will be discussed first. A tentative check-list of teaching competencies will be outlined, based on the detailed analysis of teaching techniques, and identification of those techniques which discriminated between the top- and bottom-ranked teachers. A second broad area of analysis involved curriculum, or Lesson-Areas; these findings will be discussed in the last part of this section.

TEACHING TECHNIQUES

Limitations of methods of Analysis.

Because of the amount of data in this study, and the number of details involved in this aspect of the analysis, time was a pressing factor. Therefore, for the major part of the analysis of Teaching Techniques, only the fall observations were used. The spring observations were used in determining the consistency in use of the Teaching Techniques, and in the more detailed analysis of teaching competencies.

A major limitation to the analysis in this study was the lack of external criteria on which to base the ranking of the teachers on teaching effectiveness. Because criteria such as measures of pupil progress were not available, findings will need to validated in further research with control groups (Perhaps a first step in such research would be the development of adequate measures of pupil progress, with allowances made for the type of lesson-areas covered in each class).

Findings should also be considered in the light of the fact that there was some overlapping among the teacher classifications that were used in the analysis. This overlapping was especially noticeable in the two classifications of homogeneous vs heterogeneous grouping, and top-vs bottom-ranked teachers; the homogeneous group in the fall included four of the top-ranked teachers and only one of the bottom-ranked (out of 12), while the heterogeneous group had four of the bottom-ranked teachers and only one of the top-ranked (out of 12-14).

In the light of these inter-relationships, there are some basic questions to be raised about the top- and bottom-ranked teachers: To what extent does homogeneous grouping add to the efficiency of teaching when specific teaching techniques are considered? How important is the fact that the homogeneous classes tend to be found in cities, where there are both more children and presumably more money to pay for good teaching? How much did the homogeneous situation influence the ranking of the teachers in the first place? There was no time to do the type of comparison of the two groups of children in the other two classifications that was done for the top-vs bottom-ranked teachers; the lack of such a comparison will further limit the scope of the conclusions.

Conclusions and implications will also be subject to limitations inherent in the method of treating the data. The categorizations apparently did have some validity; different methods of categorization might have produced different results (It is possible, for instance, that in using details, more global aspects which would involve some combination of the details might be overlooked). Agreement in collection of the data was closer than agreement in categorization.

The number of subjects was small in two of the classifications. Top- vs bottom-ranked teachers had seven each, only five and six respectively in comparisons involving both fall and spring; while the classification of small vs large classes also had seven teachers in each subgroup. The relatively small number of significant differences (even when a .20 level of significance was accepted) raises the question of how much repetition would appear if the study were repeated on a different or even the same sample. Since the number of trainable children in the general population is never very large, any study involving such children must of necessity deal with small samples. It seems worthwhile, therefore, to present these findings so that further research with control groups would be facilitated. The implications for teaching other levels of retardation and even normal children may help in way-pointing for future research with other types of children. It is from these standpoints that the following discussion is presented.

Before beginning the discussion, one further limitation should be pointed out: There was no attempt made to study the role and contributions of the matron, or attendant (except to make sure that there was no difference between the top- and bottom-ranked groups in whether a matron was present), and yet in some cases it was obvious that the matron was rather skillful in use of teaching techniques, and in supplementing the teacher. This whole question of the role of the matron would make a complete study in itself.

__Specific Teaching Techniques Used__.

Forty-three specific teaching techniques have been categorized under eight major areas. Of the most-used techniques, three of the Guidance and Reinforcement categories are found among the first five: Developing a concept, acknowledging a response as right or wrong, and use of Guiding Questions. Others of the first ten included "praises and rewards" in the Motivation category; use of "gestures" and "assisting a child in some way" in the Non-Verbal category; "calls on child" and "acknowledges child's original response directed towards the lesson" in the category for Involving Children In the Lesson; the Feeling Tone technique of "giving personal recognition"; and, finally, one of the Teacher-Centered techniques, "does things herself instead of letting the children do them".

This type of patterning sheds some light on the question of whether work with these trainable children involves "teaching" or "baby-sitting". All of these items, except the Teacher-Centered technique seem related to the learning process, although there might be aspects of the "assists child" technique that could be called "waiting on the children". The Teacher-Centered technique of "doing things herself" is less related to direct teaching. Since it was used significantly more by teachers with large classes and by bottom-ranked teachers who also tended to have more children with brain-injury (aside from cerebral palsy) and lower I.Q.'s, it may be that, when such factors are present, less teaching and learning are possible.

The major category of Individual and Group Control was least-used of all the major categories, and had four of the ten least-used specific techniques. One conclusion here would seem to be that, in spite of the nature of their handicap (including the prevalence of brain injury), these children do appear to be able to learn self control in a group situation, so that relatively more of the teacher's activities can be directed towards other aspects of learning. The relationship of group control to type of handicap and I.Q. level should be studied.

Patterning or Interrelationships of the Teaching Techniques.

From the findings in the cluster analysis there would seem to be at least seven general areas of teaching problems in educating trainable children: I, Individual and Group Control; II, Getting the children willing to start and continue working; III, Builing up a sense of personal worth in the children; IV, Structuring or guiding the learning; V, Encouraging cooperative interpersonal interaction; VI, Providing for a mind-set or attention; VII, Drawing from the children (as well as pouring in).

Analysis by means of a "picto-gram" showed that most of the items in the clusters involved correlations at the .01 level of significance. The picto-gram technique also helped clarify some of the interrelationships reported for three of the clusters. An analysis such as the picto-gram seems useful when quick inspectional data are needed on interrelationships and type of patterning.

More research is needed to see to what degree the findings here can be generalized to all teachers of trainable children, to teachers of retarded children in general, and to teachers of any type of child. There is also a broad field for further research in discovering, by more refined methods, which specific techniques work best in each of the seven problem areas defined by the clusters, especially since these clusters tended to include more than one of the major areas of categorization in this study.

Consistency of the Individual Teachers in Use of the Teaching Techniques.

A relatively high degree of consistency was reported in use of the different categories of teaching techniques from fall to spring for the individual teachers (At a .05 level of confidence, only four of the 29 teachers could be considered not consistent). Only a sample of time was used for this measure, however.

There seemed to be no differences among the various groups of teachers in degree of consistency, no common reasons for being high or low. It would seem, then, that either individual differences in personality are involved, or there are some variables within the situation that might affect the consistency of use. These two points may not be mutually exclusive, since changes within the situation might affect different teachers in different ways, or differences within the teachers might affect the situation.

If individual personalities are involved, and the large degree of individual differences would tend to reinforce this possibility, the question might be asked whether it would be as difficult to change habit-patterns in teaching-techniques as it seems to be to get needed changes in personality. In any case, if teaching effectiveness is related to use of specific teaching techniques, and if variations in personality also have a relationship with these techniques, it is imperative that more study be done to isolate the aspects of personality that are related, and to determine the cause-and-effect relationships as far as possible so that teacher training could be more effective.

We would need to know, for instance, which techniques would respond most to training, and whether in teacher-training more attention should be paid to personality-patterns of would-be teachers. There might also be implications for the study of teaching effectivenesses, in that group statistics and procedures used in setting up criteria of skill in teaching may not be useful for prediction with any one teacher unless such individual factors as personality differences are taken into account.

Another question about the consistency found in teaching techniques should be raised: Is consistency an asset or a liability? Should techniques change as children get older, or learn more? (There was no opportunity to compare younger with older children in this study, and yet there were some indications that such a comparison would be worthwhile). Mitzel and Rabinowitz (30, p. 12) hypothesized that consistency of the teacher might help reduce anxiety in the children. Such questions about consistency should be investigated.

Relationships of Homogeneity of Class, Size of Class, and Teaching Proficiency to Use of the Teaching Techniques.

There did seem to be differences in use of these techniques when the teachers were classified into comparative groups according to homogeneity of class, size of class, and teaching effectiveness. Size of class seems to have less to do with what techniques were used than did either homogeneity of grouping or teaching effectiveness. The patterning in use of the major and minor categories would suggest that there was similarity among homogeneous, small class, and top-ranked teacher classifications on the one hand, and on heterogeneous, large class, and bottom-ranked classifications on the other. It is difficult to escape the implication that some aspect of teaching effectiveness is involved in these patterns of similarity, even though top- and bottom-ranked teachers comprised only one-fourth of the homogeneous and heterogeneous class groups respectively. This problem will be discussed later in the section on detailed teaching competencies (pp. 107-109). The differences among all the groups in the comparative classifications suggest that ways of grouping the children, class size, and teaching effectiveness would need to be considered in any controlled study. Age of the children may also have something to do with the teaching techniques used; this was suggested by the fact that there were so many more individual and group control contacts with younger children in the homogeneous group. Although it was not possible to investigate this factor in this study because so few classes were composed of just primary or older children, it probably would be one of the variables to control in future research.

For the problem of individual and group control in general, the pattern of frequency of control problems indicated less need for control techniques after the first 20 minutes of class, and a gradual increase over a period of time. Since both socialization and learning may be facilitated when there is less need for control contacts, more study is needed of ways of preventing such problems in a classroom, and of minimizing the seeming effects of time and possible related factors such as fatigue and loss of attention which might have some influence on increase in undesirable interaction. The periodic drops in number of control contacts after the first period might be related to the type of lesson, movement about the room, and/or the motivation or interest of the children. Even though the major category of Individual and Group Control was the least used, there were enough of these contacts so that further study is needed.

Factors Which Might Contribute to Successful Teaching.

In the Teaching Technique categories, the first analysis (with fall observations) showed that in three major categories and nine sub-categories the top-ranked teachers seemed to be doing either more or less that the bottom-ranked teachers (a .20 level of significance was accepted since this was an exploratory study). In a more detailed analysis that was done with the spring observations the same three major categories discriminated, along with 28 of the refined sub-categories. Two of the sub-categories from the fall did not show a significant difference in the spring: In one, "writing on the board or child's paper" (Nw), the top-ranked teachers did less in the spring; in the other, Non-Verbal "physical guidance" (Npg), the bottom-ranked teachers did more.

In a few of the major categories in the spring, there were both plus and minus sub-categories where top-ranked teachers did most in some and bottom-ranked did most in others. There seemed to be a principle that could be called a "constructive approach" that would explain these differences within any one major category. For example, in the Motivation category (M) elaborating on praise (Mp) of the top-ranked group would seem more constructive than expressing a doubt (Mod), or asking "would you like..." when the child has little choice (Mif), or needing to urge children to answer when called on (Muq), such as the bottom-ranked teachers used. And,in the Non-Verbal category, the doing things for the child (Nas) of the bottom-ranked group would not seem as constructive as letting the children do things for themselves, or using gesture signals (Ngi, Ngc) or objects as visual aids (Nvo) as the top-ranked teachers did.

The patterning of use of the major and minor sub-categories in which the similarity among homogeneous, small, and top-ranked classifications appeared on the one hand and the heterogeneous, large, and bottom-ranked classifications on the other would also seem to be related to this principle of "a constructive approach". For example, there is a difference in the Individual and Group Control category between the telling a child to conform, sit, or be quiet (Ct) and the warning in a supporting way, telling what not to do (Cw) of the homogeneous group, and the blaming or complaining (Cnb) of the bottom-ranked group. In the Motivation category, the urging to start or continue work (Mu) that the homogeneous teachers used in the fall has been separated in the spring from the trying to get the children to respond to a question or answer when called on (Muq) of the bottom-ranked teachers. So too, it would seem that the consistency with which the teachers from large classes, heterogeneous classes, and the bottom-ranked teachers used the Teacher-Centered categories to a significantly greater degree than their comparative groups of teachers might be related to a less constructive approach in that teachers who, for whatever reason, are not working directly with the children but going about their own business are not contributing directly to the learning of the children. Perhaps, as was previously mentioned, such teacher-centered behavior is more necessary in the larger classes, classes with a wide age range, or with children who tend to be younger, lower in I. Q., and perhaps more brain-injured such as the bottom-ranked teachers had. In this case, the problem would be to determine methods by which teachers in such situations could be more constructive in their approach to the children's learning and give the children more opportunity to do things themselves. Perhaps, however, some aspects of this type of teacher behavior may only be reflecting lack of pre-planning and organization so that classroom time must be devoted to record keeping and preparation of materials instead of working directly with the children.

A Tentative Check-list of Teaching Competencies.

In this study there did seem to be teaching technique items which discriminated between more and less effective teaching. When the principle of the constructive approach is considered, homogeneity of grouping and size of class seem to be related to effectiveness in teaching and therefore to items which discriminated for these teacher groups.

The cluster analysis suggested seven problem areas in teaching trainable children. Considering the low degree of intercorrelations among the clusters and the high degree of correlation within each cluster, it could be hypothesized that any one item in a cluster would be representative of any other item within that cluster. And yet in only one cluster did all the items discriminate between the top- and bottom-ranked teachers. Since the principle of "constructive approach" does seem consistent in explaining differences between groups of teachers, and since the lack of discrimination in many of the cluster items may only be a reflection of the fact that the bottom-ranked teachers are not necessarily "bad" at their jobs, but only "less good", details of the non-discriminating items which seemed constructive could be used in a check-list of teaching competencies. Therefore, a tentative check-list of teaching competencies was constructed around these seven problem areas. The rationale behind the proposed analyses would be that items which discriminate between top- or bottom-ranked teachers, and/or "constructive" aspects of items in the various check-liste could be included in any measure of teaching competencies. This check-list must be considered "tentative" because it has not been tested in the field; the rationale behind its construction would imply enough validity to warrant presenting the material at this stage. It was felt that there is a need for a check-list which teachers could use as a guide-line to see where their own strengths and weaknesses lay; the more specific the items, the more the possibility the individual teacher could try them out.

Following is the tentative check-list of teaching competencies:

B. Tentative Check-List of Teaching Competencies.

I. Individual and Group Control: Emphasis on Preventive Aspects, Helping the Children Develop Self-Control.

1. Does not depend entirely on verbal approach; leads the child (by touch) to do what he is supposed to do.
2. Calms the child by proximity or touch.
3. Uses some sort of non-verbal signal or gesture to remind the child to conform.
4. Reminds child to do what he is supposed to do.
5. Warns child in a supportive way to be careful with something, what not to do.
6. Distracts a child from unacceptable behavior by giving something else to do.
7. Does not blame or complain.
8. May have the child sit off by himself to calm down; usually gives something else to do.
9. Helps prevent problems by structuring any period of movement about the room so confusion and undesirable behavior are at a minimum.

II. Getting the Children Started on Work; Keeping Them at Work and Interested.

1. Verbalization by the teacher is at a minimum: Uses gestures for communication, may acknowledge a child's words with a gesture.
2. Uses sincere praise, to bring a real feeling of achievement and success (more than a perfunctory "good").
3. Acknowledges the children's responses as right or wrong.
4. May prompt a child, but then lets him continue by himself.
5. Uses objects as visual aids (more concrete experience;

interest-arousing).

6. Always sounds as if sure the children can do what they are asked to do; does not use the technique of "wanting to see *if* the children can do it".
7. Calls on the children so they will participate in the lesson; uses little of the "lecture" approach.
8. Encourages self-rivalry, bettering own work.
9. May write on board or child's paper; emphasis is on helping the individual do his own work.

III. Building a Feeling of Personal Worth in the Child.

1. Gives admiration, compliment, recognition for something personal, not connected with the lesson (i.e., appearance, clothes, something the child did).
2. Greets each child as he enters.
3. Shows consideration for the child's feelings, situation, ideas; may give sympathy.
4. Uses the polite forms of "please", "thank you", etc., in talking to a child.
5. Does not "talk down" to the children; treats each one as an individual worthy of respect.
6. Asks the children what they want to do; occasionally gives a choice of activities.
7. Takes pains to give each child personal recognition during the day, with a smile, look, friendly pat, etc.
8. Gives different children errands or jobs in the room or out, so each can contribute something in the way of "service".
9. Gives individual children a chance to be a leader in different activities.

IV. Structuring or Guiding the Learning.

1. Uses physical guidance of the child's movements as needed

until the child can gradually take over for himself as he gets the feel of it.

2. Relates something new or unknown to a known; reminds children of something which has already happened.
3. Is careful to explain a concept or idea, on the children's level.
4. Lets the children do things for themselves, with a minimum of personal help.
5. Tells the children (gives a prior warning) before it is time to clean-up, so they can finish what they are doing and not be upset by a sudden stop to an activity.
6. Encourages children to do even more than they have done or thought they could do; tries to bring a real sense of achievement.
7. Supervises clean-up after a lesson; emphasizes work-habits; does not do it for the children.
8. Takes time before a lesson to get interest and incentive (motivation) high so there is little need to urge the children to start or to respond when called on.
9. "Sets the limits" with the children's help so they will know what to expect and remember the right way to act or do things; takes pains to explain how to do a thing, as well as what to do.

V. Encouraging Cooperative Interpersonal Interaction.

1. Encourages the children to volunteer for jobs and activities.
2. Encourages the children to help each other.
3. Sets up interest-centers for play (playhouse, sandbox, blocks, water-play, trucks or other wheeled toys); encourages cooperative dramatic play on each child's level of development; encourages interaction during free-play periods.
4. Simple group games are used indoors and out; fair-play and teamwork are brought out in a "fun" situation.

5. Children are encouraged to share things with each other, to play together when using equipment.
6. Children are encouraged to take turns, to give the other person a chance to answer or to do something.
7. Children are allowed to sit by or work with each other as long as no one is disturbed; they are not tied to seats all day, but have some freedom to move about, get materials, talk to each other quietly.
8. As the children learn how, they are given a chance to run parts of the day's program by themselves.
9. Different children are given turns to pass out materials.

VI. Providing for a Mind-set, or Attention.

1. Gets the children's attention before starting a lesson.
2. Makes sure a child is listening before trying to tell him something.
3. Helps the children see a reason for doing something.
4. Waits until the children are in position before beginning a lesson; may direct the children into another position or part of the room.
5. Tells the children what is coming next.
6. If children's attention wanders, does not go on with lesson until attention is recalled (i.e., not carrying on when only a few are listening).
7. Comments on or compliments those children who have gotten ready (instead of calling attention to the ones who are not).
8. Emphasizes the listening skills of looking at the person who is talking, using ears, shutting mouths.
9. Keeps lessons short in the beginning, gradually lengthening the periods as the children's attention-span improves; provides a variety of interesting things to do.

VII. Drawing From the Children (as well as just "pouring-in").

1. Uses guiding questions as clues to stimulate memory, thinking, association.
2. Does not let the presence of other adults distract from emphasis on the children.
3. Knows when not to let a child interrupt the lesson with an extraneous comment.
4. Comments, or questions a child as he is telling about something, to prompt him to tell more.
5. Encourages children to ask questions; gives information when asked for it.
6. Does not reject volunteered comments by the children when related to the lesson.
7. Does not rush a child when he is trying to talk; allows plenty of time for the child to answer or give his own comments.
8. Has the children help in evaluating a lesson or experience, in telling how it went, what they liked about it, how to do it better.
9. Encourages the children to communicate; does not let one child monopolize the talking; makes provisions for non-verbal children to communicate through gestures, pictures, drawing.

LESSONS TAUGHT.

Introduction.

The second area of analysis involved the types of lessons that were taught. There were limitations in sampling in this area, in that the classes were only visited on part of two different days; therefore, it cannot be said for any one teacher that a lesson-area was not used, even though not observed on the two visits. The composite picture of

29 classes visited twice at intervals of four to six months does seem to give a fairly good picture of program activities in these classes.

Since all the teachers had worked jointly, by committees, on a curriculum guide at meetings twice a year, a degree of uniformity in use of lesson-areas could be expected. It was also apparent that most of these teachers had previous experience with normal children in regular grades; one wonders how much this prior orientation would influence choice of the specific learning activities presented in lesson-areas. More study is obviously needed before any final conclusions can be made about the value of any particular lesson-area to the children.

Specific Lessons Used.

Ninety-eight lesson-areas were categorized, under fifteen major headings, from observations in this study and in the pilot study. (A supplement to this report gives details of activities in each lesson sub-category.) Seven of these lesson-areas were not observed as lessons during this study, although there was evidence from displays in the rooms and from comments made by children and teachers that most of these seven lessons had been done at some time during the school year.

There were wide variations in amount of use of specific curriculum or lesson-areas. (These variations also appeared within many of the major categories; work habits, for instance, contributed more than 80 per cent to the total of the five lessons under Occupational Education.) These variations will need to be kept in mind when results are discussed in terms of major categories.

Relative Emphasis in Different Lesson-Areas.

When the relative emphasis on lesson-areas by all 29 Tennessee teachers was investigated, Language Development seemed to be receiving a disproportionate amount of emphasis. However, what is done most is not necessarily what is best. Some study is urgently needed to help in deciding whether Language Development is a profitable enough area to warrant the time spent on it, or whether the stress on this language area just reflects the school's high level of dependence on verbalization, and language skills would not be needed by trainable children to the same extent outside the school situation.

Of the more specific sub-categories under Language Development, talking period (and sharing) was used most often, unison speaking, second; reading, third; speech drills, fourth; and "reading pictures", fifth. In relative degree of emphasis, talking-time was again first; reading, second; unison speaking, third; and writing and "reading" pictures were tied for fourth. Even though the details in appendix 3 show that much of reading involved learning to recognize their own names, the value of the proportionate emphasis on this one area may be open to question with this type of child. When reading readiness is used as part of the program in developing each child's own capacity for thinking skills, there may be some justification for this emphasis. The problem for research would be to develop equally good progressive steps towards thinking skills in other more practical curriculum areas.

Study is also needed to discover whether there perhaps should be more variations in type of lessons to meet varying needs of the children according to etiology, age, and I. Q. level. For example, the assumption has usually been made that adjustment to such problems could be done within the lesson-areas; it might turn out that more emphasis should be put on lessons like Sensory Training with younger children, and on Practical Arts with older children. These comparative rank-order results for the teachers in this state also should be compared to that of other states to see to what extent there is variety in the areas which are emphasized most or least.

There also seemed to be differences within and among the teacher classifications as to which lessons were receiving relatively more emphasis in any one teaching-group's total program. One general conclusion here is that teaching skill seems less related to lesson-emphasis than it was to use of Teaching-techniques, since there is no consistent patterning between top-ranked and any other group in the type of lessons given most emphasis. There were fewer lesson-areas involved in the spring than in the fall, and each teacher group was emphasizing a different lesson-area in the spring than in the fall; the implication here would be that the children were profiting from the earlier lessons and now new learnings were in progress, though at a slower rate; a corollary might be that lesson-emphasis is more related to the type of children in the classes and to the situation in which the teacher is working (including size of room, type of equipment, facilities within the room, special hobbies or skills of the individual teachers).

A high degree of uniformity in use of lesson-areas was discovered among all the teacher classifications. All of the rank-order intercorrelations among the teaching groups were at the .01 level of significance; in only 9 of the 15 major lesson-areas did any real differences appear, and then just for two at the most in any one classification. The in-service training program for teachers that was a part of special education in the State of Tennessee is probably largely responsible for the high degree of correlation among the different teacher groups. Since this is a relatively new field, the impact of such in-service training would tend to be even stronger, thus intensifying the similarities among the teachers.

The question arises as to the value of the differing emphases in these lesson-areas. Perhaps any major lesson-area is as good as another for fostering a general aim like socialization; in this case a teacher's skill in music,or arts and crafts could be utilized to the fullest. It remains to be seen whether the content within any one lesson-area is practical and useful to the children.

If the high degree of correlation really does reflect the state-wide in-service training that has been provided for these teachers, there is an implication that this technique might provide a way to measure the results of an in-service program. This possibility could be checked by a study of comparable groups in places where such in-service training existed and where it did not.

Individualization of Instruction.

Tennessee teachers do seem to be using individualization of instruction to a great degree. However, individualization of instruction with these teachers in Tennessee seems to be an all-or-none matter, since the teachers worked either with one child or the class as a whole and did very little with any of the sub-grouping that has been recommended in regular education to help provide for individual differences within a class.

Teaching skill and type of grouping seemed related to relative amounts of use of one-child and whole-class lessons; top-ranked teachers did more one-child lessons than bottom-ranked, and in homogeneous classes, the teachers used relatively more whole-class lessons than the teachers of heterogeneous classes (even though both did more one-child than whole-class lessons). Perhaps the degree of individualization may depend on teaching skill and/or type of children in the class and type of class grouping.

Some lesson-areas seemed to be used more with the individualized approach, and others with the whole-class approach, as is to be expected. Further study seems indicated to answer such questions as the following: (1) would other teachers in other states show the same patternings in use of individualization? (2) is working with one child the most effective way of facilitating individual learning in these trainable classes, or should some type of sub-grouping technique be developed, too? (3) what would be the optimum balance between the whole-class approach and the more individualized approach? how much of each would produce the most learning in these children in each lesson-area? (4) under what conditions is individualization best done? would age or I. Q. level of the children be related to more and/or less use of the individualized approach?

Since individualization does seem to be an important part of the education of these trainable children, in Tennessee at least, more should be known about the process and techniques involved.

Amount and Type of Emphasis: Comparisons on Several Variables.

When the amount of emphasis being given each lesson-area was investigated, there did seem to be some differences among the three teacher classifications (teachers with homogeneous or heterogeneous classes, small or large classes, and teachers ranked in top and bottom quartiles on teaching effectiveness). The variable of teaching effectiveness seemed more related to total amount of emphasis used than did type of grouping of the children or size of class. (Size of class seemed to have little influence, since no significant difference was found between large or small classes in amount of emphasis per se.) Top-ranked teachers used more of the lesson-areas, and gave more emphasis than bottom-ranked teachers; the implication might be that top-ranked teachers were doing more teaching.

One difference that appeared in comparing homogeneous classes with heterogeneous classes was that, in the more heterogeneous classes, more repetition of lessons was used (thus probably more integration or correlation of lesson-areas during the day). It is difficult to tell whether such a finding would indicate that it was more of a problem to get a satisfactory amount of learning in any one lesson when there was a wider age and/or ability level within a class (so that more repetition was needed), or whether this wider range within a class made the teachers more aware of the need for repeating lessons to ensure an adequate practice effect.

There were also some differences between homogeneous and heterogeneous teachers in amount of use of "incidental" or "slightly developed" lessons respectively in fall or spring, with this lesson repetition. It may be that amount of repetition, in itself, is not as important as how it is done. It would seem that more study of repetition of lessons would be fruitful, if repetition is as much indicated for retarded children's learning as has been assumed; type of grouping is probably not the only variable involved.

Both top- and bottom-ranked teachers tended to use an "incidental" approach more than one of developing the lesson topic to any degree. The "incidental" approach, as defined in this study, included two techniques: one was a more or less casual mention of the topic, with no attempt to develop a concept; the other was what might be called "practice" or "self-teaching" aspects of learning, where the children were given an opportunity to do something, but the teacher did not attempt to guide or assist with the activity at the time of observation. (Obviously the children had had some instruction, or they couldn't have gone ahead on their own.) While differences also existed in use of "incidental" (and more developed) approaches to lessons for the other two classifications, lack of time precluded following this up.

The question arises as to the value of "incidental teaching" as defined, for trainable children. In the sense of facilitating perception and awareness, as a "casual mention" would imply, it might be a useful technique; and opportunity to practice a skill would be highly desirable. One implication from the findings in this area would be that, for trainable children, there should be relatively less learning of new things or even verbal review of previous learning, and more opportunity for each child to try out what he has been learning. Further study seems needed in this area of "incidental" vs. more detailed teaching. Learning studies, in particular, could help evaluate the usefulness of the "casual mention" (especially if repeated in varying situations) to increased perception and awareness in these children. And it might be possible to discover what the optimum balance should be between practice and introduction of new learnings. The relationships of variables like class size, skill in teaching, homogeneity or heterogeneity of grouping, and perhaps age of the children, to use of "incidental", "slightly developed", or "fully developed" lessons should be further explored, too.

It should be noted that the differences reported for the top-ranked teachers in amount of emphasis in different lesson-areas would seem to indicate that efficiency also involves degrees of emphasis on subject

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matter, and not just the presence or absence of a topic.

Relationship Between Lesson-Areas and Teaching-Techniques.

There seemed to be little, if any, relationship between the teaching techniques and major lesson areas as defined in this study. The measure used (coefficient of concordance, involving rank-order within major categories) was not too exact, however; also, shortcomings of the categorization could have affected the results. Still, this finding would need to be considered in any investigation into teaching effectiveness or into the seven areas of teaching problems that appeared in the cluster analysis.

SUMMARY

Preface.

The rapid growth of public day school classes for severely mentally retarded (trainable) children in the United States has meant that educators are working for the first time with a group of children for whom little study has been made of teaching-techniques and types of lessons taught. A review of the literature revealed no reports of research in these areas.

Purpose.

The purpose of this study was to identify and evaluate methods being used in public day school classes for severely mentally retarded (trainable) children.

Procedure.

Subjects were teachers in 29 classes for trainable white children in the State of Tennessee. This included all such classes in the state except one in which the teacher changed in the middle of the year, and two others which were starting later in the fall for the first time.

Observations of teaching procedures in the classrooms were made in each class for 100 minutes in the fall of 1957 and again in the spring of 1958. Running descriptions of classroom procedures were dictated directly into a tape recorder in the classroom, and the tape recordings were later typed so a detailed analysis was possible.

Teaching-techniques and lesson-areas used by the teachers were each categorized, and descriptive statistics were used to investigate the following major factors:

For Teaching-Techniques:

Patterning, or clusters in the use of teaching-techniques which would indicate areas of teaching problems.

Consistency in use of the teaching-techniques.

The effects of homogeneity of grouping, class size, and teaching effectiveness on use of teaching-techniques.

More specific techniques which seem to be related to teaching effectiveness (and could be used in a check-list of teaching competencies).

For Lesson-Areas:

The relative emphasis being given to different lesson-areas.

The amount and type of individualization of instruction being used.

The effects of homogeneity of grouping in classes, class size, and teaching effectiveness on use of lessons.

Relationship of teaching-techniques to lesson-areas.

Results:

Teaching-Techniques:

A cluster analysis suggested seven problem areas in teaching trainable children: (1) Individual and group control; (2) Getting the children willing to start and continue working; (3) Building up a sense of personal worth in the children; (4) Structuring or guiding the learning; (5) Encouraging cooperative interpersonal interaction; (6) Providing for a mind-set or attention; and (7) Drawing "from" the children (as opposed to "pouring in").

The teachers seemed highly consistent in use of techniques. The wide individual differences suggested that personality factors might be involved.

Differences were found in use of the categorized teaching-techniques when teachers were compared according to whether they had homogeneous or heterogeneous classes, large or small classes, or whether the teachers were in the top- or bottom-ranked quartiles (ranked on effectiveness of teaching). Teaching effectiveness seemed more related to differences in amount of use than did the other variables of class grouping or class size; even when type of class (i.e., homogeneous vs. heterogeneous) or size of class seemed to make a difference, some aspects of teaching effectiveness appeared to be directly or indirectly involved.

When the problem of individual and group control was investigated in more detail, there was some indication that age of the children was also related to differences in the number of control contacts needed. For the group of teachers as a whole, control problems seemed to increase after a time in the classroom, although there were sharp drops at intervals during the 100 minutes of observation.

Teaching-techniques were isolated which did seem to discriminate between top- and bottom-ranked teachers (in more specific ways than the criteria used in the original ranking). These items, when seen in relation to the cluster analysis and to other aspects of teaching effectiveness, provided the basis for a tentative check-list of teaching competencies.

Lesson Areas:

For the 29 teachers in Tennessee, Language Development was given much more emphasis than any other of the teaching areas; Practical Arts received the least amount of emphasis. There also seemed to be differences in the relative amount of emphasis being given to different lesson-areas by the different teacher groups (i.e., teachers with homogeneous classes vs. teachers with heterogeneous classes, teachers with small classes vs. teachers with large classes, and top- vs. bottom-ranked teachers).

Individualization of instruction was used extensively. This individualization seemed to be done with one child, more than with any sort of sub-group. Some lessons were used more with a one-child approach and others more with the whole class.

A few differences were found for the comparative teacher groups in amount and type of use of lesson-areas. Teaching effectiveness was more related to differences in number of times a lesson-area was used, and to differences in amount of emphasis on the lessons, than to either homogeneity of grouping or size of class. Homogeneity and heterogeneity of grouping seemed to be related to differences in repetition of lessons. For all the teachers, there was evidence that incidental teaching was used more than partial or full development of a lesson topic.

There seemed to be no relationship between type of lesson and teaching-techniques used.

PROBLEMS IN GENERALIZING FROM THESE RESULTS: SUMMARY OF LIMITATIONS IN THIS STUDY

This was an exploratory study; no hypotheses were tested and the results must be considered as tentative leads or way-pointers for further research.

The number of subjects was small, and the sub-groupings of teachers resulted in further limiting of numbers. The results may not be applicable to other teachers of trainable children, to say nothing of other levels of mental retardation or normal children.

There was overlapping among the comparative teacher groups, in that the same teachers might be in two or more groups; this would tend to interfere with clear-cut results.

Only teachers in one state were studied. Tennessee teachers may not be typical of teachers of trainable children in other states where differences exist in economic, cultural, or educational factors.

Two hundred minutes of observation provides a better sampling of teaching-techniques than of lesson-areas. This sampling problem may be distorting the findings in the lesson-areas, since, in any one teacher's room, a lesson that was not observed may have been taught some other time during the school year.

No study was made of the influence of the matron, or attendant, on the classroom situation.

One of the greatest limitations in this study was the lack of external criteria of teaching effectiveness, such as measures of pupil growth. Conclusions in this area especially, can only be suggestive until further research is completed.

The results are based upon a system of categorization that was not set up in advance but grew out of the observation material. It was assumed that any categorization would be useful if it were operationally defined; however, different categorizations might have produced different results. Findings can only be tentative until further research is done.

INDICATIONS OF NEEDED RESEARCH

The patterning of teaching-techniques needs more study. Problem areas in teaching should be further clarified, including study of the applicability of the seven clusters defined in this study to other types of classes. Further investigation is needed to discover which teaching-techniques would produce the best results in each of the problem-areas.

The problem of consistency in use of teaching-techniques needs exploring to determine advantages and disadvantages, and when or if changes might be needed. Also, investigation into the relationship between personality patterns and use of specific teaching-techniques seems needed.

Since there do seem to be differences in use of specific teaching-techniques when such variables as homogeneity of grouping, class size, teaching effectiveness, and perhaps age of the children, are taken into account, controlled studies should be made to test for efficacy of various specific techniques under different classroom conditions and for different types of children. This would be one facet of teaching effectiveness.

If maximum learning is to be possible for trainable children, the problem of individual and group control should receive more study. Such study would include the effects of time and its possible related factors of attention-span, over-stimulation, and fatigue, and the relationship of type and length of lesson, activity by the children, and teaching-techniques to individual and group control.

The check-list of teaching competencies needs testing in applied situations, with control groups set up according to external criteria. Items which do discriminate, eventually should be expended into some sort of practical rating scale. With such a rating scale, the possible influence of degree of professional training, age of teachers, type of child, etc., on teaching effectiveness could be measured.

Some measures are needed by which a trainable child's use or application of information, attitudes, and habits involved in the different lesson-areas could be studied. More of this type of research, if carried over into both follow-up and longitudinal studies, would help provide answers to the questions of feasibility and usefulness of different lesson-areas in these training programs, and possible needed variations for different ages and types of children.

More information is needed on lesson-emphasis in other states in order to see if the findings in this study are typical of other training programs.

The relationship of variables such as type of grouping, class size, and teaching skill, to use and emphasis of specific lesson-areas needs clarifying. The qualitative aspects of lesson-emphasis also should be investigated, including the relationship of amount of emphasis to degree of learning.

More study is needed on the best ways of presenting specific lesson material; studies using control groups could provide more definitive answers here.

More study is needed of the problem of individualization of instruction, and the best methods of achieving it with different types of children and class situations without loss of possible values in group experiences.

It may be profitable to explore further the dynamics of lesson-repetition that were suggested in this study, including the relationship of such factors as type of grouping, age of children, and methods of using repetition.

The possible contribution of repeated "casual mention" of a topic to a trainable child's perception and awareness of that topic seems to need study. More study is also needed of the rate of learning of trainable children, and the contributions to retention of various types of practice and experience with the learnings.

The impact of state-wide in-service training programs probably should be investigated further. By using comparative groups, and measuring differences in lesson emphasis before and after training, it would be possible to determine the value of this type of measure; then the usefulness of different in-service training techniques could be evaluated.

The whole problem of the matron's role in these trainable classes needs study. Such study might be essential to understanding of teacher effectiveness in general in these trainable classes.

APPENDIX 1

FINE-DETAIL CATEGORIES OF TEACHING-TECHNIQUES*

1. S. Structuring the Teaching Situation.

sa 1.	Gets child's attention before starting a lesson.
sa 2.	Gets or recalls a child's attention during a lesson.
sm 1.	Has children get equipment or move furniture for a lesson.
sm 2.	Has children change position for a lesson.
si 1.	Tells what will come next.
si 2.	Either asks child what they want to do next, or gives a choice of activities.
si 3.	Tells children just a few more minutes to finish up.
sc 1.	Tells or directs individual children in clean-up during lesson.
sc 2.	Directs children in clean-up-put-away-ready for another lesson.
ss 1.	Sends child on errand out of room.
ss 2.	Sends child on errand inside of room (to get or do something for teacher).
sq.	Questions: are you ready, etc.

2. M. Motivation.

MP:

mpu.	Comments on child's ability, etc., to encourage him to participate.
mpc.	Simple "good", "fine", etc., to acknowledge a correct response--no elaboration.
mpr.	Really praises, elaborates, to bring real feeling of success or achievement (not perfunctory--may be just tone of voice, or repetition of praise, etc.).
mpe.	Praise given in response to child's voluntary showing of work; encourages child by praising his efforts and recognizing his work.
mpg.	Praises a group as a whole (feeling tone, really).
mpng.	Claps for a child, gets or encourages children to clap for a child.

MC:

mcr.	Appeals to rivalry, competition with others.
mcs.	Self-rivalry; encourages to work and do better (how many can you do, etc.).
mct.	Teacher challenges child to see if they can "fool" her, or she can "trick" them.
mcd.	Teacher implies or expresses a doubt; tells children she wants to see if he can do it--a sort of test.

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* Used in determining teaching competencies, spring observations only.

MI:

mig. Game approach.

mif. Non-directive "would you like". (Feeling tone sense; may not really give a choice, but considers his feelings.)

mit. Please teacher, sit by teacher. ("For me", or "I want you to".)

mie. Cause and effect: "if this.....then this" (good thing).

mih. Uses interest in something already past to motivate present activities.

mu. Urging child.

mur. Repeats request--trying to get child started on work.

muq. Tries to get child to respond to question or answer when called on.

mup. Participation further during an activity. (Encouraging children to sing when called on, etc.)

muw. Encouraging children to do more work on a thing, or finishing what is started.

muf. Hurries children, tries to get them to work faster.

3. G. Guidance and Reinforcement.

ge. Explains a concept or idea.

geq. Answers child's question with information.

gt. Teacher asks and answers own rhetorical question.

gr. Reminds, relates new or unknown to a known.

ghw. Tells what to do: part of telling how; giving further instruction.

gh. Tells how to do something before an idea. (Otherwise, ge.)

gq. Asks guiding question to stimulate memory or thinking or association in sense of giving a clue.

ra. Acknowledges response as right or wrong: no elaboration or explanation.

rc. Simple correction of wrong response (no explanation).

rva. Gives verbal assistance: talks or sings along with children.

rp. Prompts children, but then lets them continue by themselves.

rq. Uses questions as prompting, to keep child talking about something.

rs. Responds to child's asked-for report with further comment (implies interest in what child said).

rf. Suggests possible follow-up activities at a later time. (Seems to be re-inforcing what was said, more than explaining.)

4. N. Non-verbal Teaching.

nt 1. Touches child, steers: to start or direct motion.

nt 2. Leads (guides) child somewhere (actually touching him). Supportive action, not control.

npg. *Physical guidance of child's movements; child takes over gradually.*

ngs.	Gestures used to supplement words; used along with words.
ngi.	Gestures used to acknowledge child's response or request.
nge.	Gestures used for communication, without words.
nwb.	Writes on board.
nwp.	Writes on child's paper.
nvp.	Pictures as visual aids.
nvm.	Movies, film-strips as visual aids.
nvo.	Objects as visual aids.
nvc.	Charts as visual aids.
nvr.	Real objects as visual aids.
nas.	Assists child in some way--direct, personal assistance.
nac.	Moves child's chair or table for him.(furniture assistance).
nat.	Takes or gives a thing from or to child.

5. I. Involves Children in Lesson.

ic 1.	Calls on child for response involving action. (May include talking, but not just talk.)
ic 2.	Calls on child for verbal response (not by question).
ic 3.	Calls on all children in turn, routinely and quickly.
iq 1.	Asks child question to which routine verbal response is possible.
iq 2.	Questions to stimulate thinging--why, how, etc.
ia 1.	Acknowledges child's original question or overture directed toward the lesson. (His idea or overture not summarily rejected.
ia 2.	Rejects child's original response, or ignores it.
iv 1.	Asks for volunteers--specific action or job.
iv 2.	Indirect calling on group in general. Indirect question, or question directed to any one who wants to respond with the answer.
ih.	Asks or gets child to help another.

6. F. Feeling-tone.

(Anything not directly connected with lesson, which would build up child's feeling of acceptance, self-confidence, self-esteem, feeling of rapport. Aimed at child, per se; not lesson, as such.)

frs.	Smiles at child.
frc 1.	Personal caress.
frc 2.	Accepts caress from child or personal contact that implies confidence, etc.
frg.	Greets child as he enters or as teacher sees him.
frt.	Carries on conversation; talks with child (not a lesson).
frp.	Recognition of child, such as singing to him, etc.
fa 1.	Admires or compliments child on something personal--not related to performance or doncitions in lesson.
fa 2.	Praises or gives recognition for something he did. (Not lesson.)

fp 1.	Teacher is polite to children, says "please", "thank you", etc.
fp 2.	Teacher shows consideration for child, for his feelings, situation, ideas; may give sympathy.
fi 1.	Child's own original ideas are acknowledged, accepted. Not related to lesson. If teacher goes on and talks about it, add frt.
fi 2.	Child's original ideas are rejected. (Any explanation, fpc.)
fl.	Has one child be "leader" or "aid", etc., for the day. Partly giving recognition, and partly training in responsibility; may be for a particular activity, too.

7. T. Teacher-centered.

tw 1.	Writes on own records or work.
tw 2.	Works on materials for class.
th 1.	Gets or puts away materials herself.
th 2.	Does other things instead of letting children do them (not materials).
to 1.	Teacher goes out of room alone--not with child.
to 2.	Teacher goes out of room with child.
ta.	Teacher interaction with matron or other adult (children not included).

8. C. Individual and Group Control.

cro.	Sends child out of room when he can't conform.
cri.	Sends child off by himself in room (or to own seat) when he can't cooperate.
ci.	Teacher removes interfering stimuli casually--little or no talk about it.
cs.	Teacher uses signal-interference (non-verbal) to get change in behavior. (Usually--not touching; hand on child, if no words, this, too; if words, etc.)
cc.	Corrects child who is doing what he shouldn't. (Part of ct. in earlier categories.)
ct.	Tells child to do what he's supposed to be doing. (Child might not be misbehaving.)
cq.	Quiets or calms down a child (verbally).
ctc.	Touch-control--guides child to do what he is supposed to do; actually steers his movement. (If touches and comments, use this instead of signal interference.)
cwc.	Warns child to be careful with something.
cwe.	Warns child (cause-effect relationship--something unpleasant); may explain why. Not a threat of teacher action, but effect growing out of his action.
cws.	Simply warns child to stop doing something, or not do it again.
cwt.	Teacher warns child of something she'll have to do if behavior persists (warning may be implied).

cwp.	Threatens child with punishment of some sort.
cwi.	Warns child not to answer for another.
cns.	Scolds a child; tells him he's bad, etc.
cnb.	Complains and blames. (Negative approach, no help to child, poor feeling-tone.)
cnp.	Gives physical punishment.
cd.	Distracts child from unacceptable behavior by giving something else to do; no fuss about it.

APPENDIX 2

LESSON AREAS: CATEGORIES, WITH DESCRIPTION OF PROCEDURES USED.*

AA: Arithmetic Concepts.

a. Numbers.

Concepts of amount.
- Using picture cards with numbers or groups of objects.
- Explaining amounts by showing that many things.
- Introducing one number each day and reviewing the concept of how many things that number involved.
- Including in any seatwork such as coloring whatever number of objects they had been working on that day.
- Reviewing with the children what they had two of, such as hands, arms, eyes, ears.
- Commenting on the number of things in a story.

Practice in simple counting.
- Using counting rhymes or number songs.
- Rote counting, forwards or backwards.
- Repeating numbers after the teacher.
- Counting as they do a series of exercises.

Relating counting to the idea of how-many.
- Counting on fingers.
- Holding up the right number of fingers to show "how many."
- Setting out one more object each time a number was said or sung.
- Telling how many fingers on one hand or toes on a foot, how many children are absent or present, how many days a child has been absent, how many days in a week, children in the room, how many boys or girls,
- Counting the goals made in basketball.
- Counting cards or objects after a game to see who got the most.
- Playing a game in which the teacher put out a certain number of counting blocks and the child who called out the correct number first won.
- Counting the rest of the class to see how many papers should be passed or how many lunches would be needed,
- Getting or putting away a certain number of objects.
- Passing a certain number of cookies to each child.
- Turning a certain number of pages in a book.

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* Because of time limitations, only a rough outline was possible.

- Giving to other children a specified number of bottles.
- Putting a certain number of flannel pieces on the flannel board.
- Following directions written by the teacher to find a certain number of objects in a picture.
- Deciding how many noses or ears to put on a face they were drawing or making in craft period.

Recognizing the shape of numbers.

- Teacher explains that numbers have names and tells what each name is.
- Telling what the numbers are on cards the teacher holds up.
- Saying numbers as the teacher points to them.
- Reading numbers off a chart.
- Putting on or taking off a numbered object from a chart rack or flannel board.
- Getting up and doing something if you hold the number called for.
- Picking out one number from a row of numbers. (Numbers are cut-outs or on separate cards.)
- Telling what new number was made when two numbers were put together on board or flannel board (i.e., 1 and 2 to make 12).

Learning to associate a number symbol with an amount.

- Matching domino cards to numbers.
- Picking out the correct number to put by a matching group of blocks. (May do this on seatwork paper.)
- Drawing on seatwork the correct number of objects to illustrate a number.
- Pasting the correct number of pictures on a page to match a written number.

Writing numbers.

- "Writing" numbers in the air with a finger.
- Copying numbers written on board or on their paper.
- Counting objects and then writing in the correct number.
- Writing numbers as the teacher dictates.

Learning the concept of sequence.

- Telling what number comes next. (May do either before or after a number.)
- Putting cut-out numbers or number cards in the correct sequence.
- Using Draw-a-dot papers that make a picture if the correct sequence has been followed.

Learning addition or subtraction.

- Adding to or taking away objects on a flannel board to match a problem set up in numbers.
- Telling how many more objects were needed to make a certain number.
- Telling how many are left when some are taken from a group of objects.
- Counting two groups of objects to tell how many altogether.
- Working out seat work papers of addition or subtraction problems; using counting blocks, peg board, or written tallies to visualize amounts.

Learning concept of size.

- Telling which objects are big or little.
- Showing with a gesture how big something was.
- Indicate which number was biggest.

Miscellaneous.

- Teacher uses the terms "first", "second", "third", etc. in lining the children up, or in explaining turns.
- Teacher explains "halfway" by comments about being halfway through the week, or through some work.
- Children are drilled in taking the "top" or "bottom" objects off a pile.
- Teacher explains what a "pair" is (shoes, socks, etc.).
- Teacher comments about page numbers; shows children how to find a correct page by checking the number.
- Puzzles are used which involve numbers or quantity.
- Number words are used in a word-drill lesson.

b. Clock and time.

- Teacher talks about a watch a child is wearing.
- Teacher comments on what time school is out, when the next activity will start.
- Teacher talks about what time the children should go to bed, what time various things are done at home, such as meals.
- Using clock faces for practice in reading numbers.
- Telling what time the hands indicated on the clock when set for different hours or half hours. (Play clock, alarm clock, wrist watch, pocket watch, wall clock--either teacher or children might move the hands.)
- Setting the hands on a clock for an asked-for time.
- Using seat work papers (with an older group) in which the children drew in the hands to show the times the teacher

had written on the board. (Practice was given the whole class on this earlier at the board.)

c. Calendar. (Where numbers are involved.)

Writing (copying) the date on seatwork papers.

Finding certain numbers or dates on the calendar for holidays, birthdays, etc.

Keeping individual calendars as one form of seatwork, and filling in the date each day.

Finding the day of the week on a commercial calendar and putting the correct number on a chart calendar the teacher had made.

Reviewing the name of the day, date of the day, with a calendar as visual aid.

d. Measurement.

Temperature.

Reading numbers from indoor and/or outdoor thermometers, writing down the temperature.

Checking thermometer to see if it were warmer indoors or out.

Checking thermometer to see if it had gone up or down.

Checking and setting a thermometer on a stove.

Measuring for cooking.

Using measuring cups or spoons in following a recipe.

Heights and weights.

Using scales to weigh and measure the children; writing down the results on the board; using the written numbers as a check after comparing the heights of two children standing side by side.

e. Money.

Teacher shows the children different kinds of money (including paper and silver dollars), has them look at and handle the money.

Discussing what certain pieces of money would buy.

Teacher asks how many lunches, or milks, money brought to school would buy.

Telling in news period what they had bought with their money.

Using play money in a play store at school.

Practicing making change, by determining how many of one coin would make another.

f. Ages.

Children are asked to tell how old they are, how old they will be on an approaching birthday.

Teacher comments on a child's age, relates it to numbers they are working with.

g. Telephone.

Teacher drills children on saying their own telephone numbers.

Children practice writing their own numbers.

Using matching cards with a child's own telephone number.

Dialing an assigned number on a phone. (One class was using a telephone set donated by the phone company in which two phones really ring when dialed.)

Workbooks donated by the telephone company are used to write in the numbers of others in the room. (Same form as in a real telephone book.)

AC: Arts and Crafts.

a. Coloring.

Teacher may review the names of the colors first, and talk with children about what would make a good picture (what colors).

For physically handicapped children, coloring papers were fastened to the desk with tape so the child's attempts to manipulate the crayon wouldn't move or tear the paper.

Using hectographed or dittoed patterns, commercial color books, coloring a shape the teacher had drawn on the child's paper, tracing and coloring a pattern, coloring a picture the child himself had outlined first.

Talking about colors on the autumn leaves, using those colors on leaf pictures.

On a seatwork paper of different geometrical shapes, coloring all the same shapes the same color.

b. Drawing, painting, clay.

Free drawing, in which children drew whatever they wanted to-- in free play periods; when waiting for others to finish another lesson, in a regular art period.

Drawing a picture of something seen or experienced (including story, movie, T.V.).

Adding their own drawing to what was on a seatwork paper to make the picture more elaborate, or to add their own ideas.

Drawing a specific shape or picture asked for by the teacher.
  One child who couldn't talk drew on the board the food he had for breakfast, during a "news" period.
  Teacher draws a shape on the board, with the children copying it step by step, following directions.
Painting at an easel with poster paints.
Using water-color paints (older children).
Painting plaster-of-paris figurines.
Finger painting.
Clay modeling; something asked for, some shape a child had in mind, or just experimenting with feel and shape.

c. Wood work.

Making wooden tie racks for Father's day.
Making furniture for play house from wood boxes.

d. Pasting and cutting.

Pasting colored squares on paper in the order the teacher indicated or demonstrated.
Cutting strips of paper for later use, folding and cutting paper into needed sizes.
Making paper chains.
Pasting features on a Jack-O-Lantern, etc.
Gluing shells on a paper to outline a design.
Pasting colored leaves (paper) on a paper as if they were falling.
Pasting a big picture on a reading or story chart for teacher.
Cutting pictures from magazines and pasting them into scrap books.
Cutting pictures from wall-paper sample books and pasting them to make a story or design of their own on another paper.
On a seat work paper, cutting out a separate animal heads and pasting them on to the correct bodies.
Cutting out pictures on seat work and pasting them beside a similar picture.

e. Making crafts objects.

Lacing around edge of wood or leather blocks.
Lacing up scrap books.
Cutting out jigsaw patterns.
Making paper decorations for the room for holidays.
Making gift-wrapping paper, tying up gifts.

Gluing colored stones into a commercial comb and brush gift set.
Pouring plaster of Paris (etc.) into molds for figurines.
Weaving paper strips to make mats.
Tracing paper feathers to make an Indian hat.
Folding paper to make bouncy, spring-like hanging objects.
Loop weaving.

f. Stencils and tracing.

Tracing around patterns.
Tracing over a picture at the window.
Putting a leaf or other object under a paper, rubbing a crayon over the paper to make the outline come through.
Using stencils with crayons or poster paints. (Jack-O-Lantern heads, Christmas stencils.)
Tracing around successive blocks of wood to make a train, etc.

D: Dramatization.

v. Using gestures.

Using gestures with songs, stories, rhymes; usually hand gestures, but sometimes foot or bodily movements were involved.

w. Acting out a story or song.

Doing the actions for a game such as "Did You Ever See a Lassie". Teacher might suggest actions, or encourage children to think up their own, each one different. Sometimes the rest tried to guess what the actions were representing.
Acting out nursery rhymes (Little Miss Muffet, Jack Jump Over the Candle Stick).
Acting out the story of a song, as others sang.
Acting out the Hallowe'en characters to fit their costumes.

x. Dramatic play. (Make-believe.)

Make believe with dolls.
Make believe in a play house: eating, cooking, home play.
Dramatic play in a play store, buying, selling, delivering.
Using toy trucks, etc., loading and dumping.
Using stop and go signs, with one child olaying policeman.
Delivering milk bottles (toy ones), or Coke bottles, etc., in a dramatic play situation.

Pretending to be another person.
Pretending to read a newspaper, talk on a telephone.
Making-believe to ride a bicycle.
Pretending in a numbers game that the counting blocks were toy soldiers. (Usually "pretend" was initiated by teacher.)
Pretending they were taking a walk while tracing a maze.
Pantomine or make believe with actions during a song. (Might be pantomining singing the words with a record.)

y. Puppets. (Not observed as a lesson.)

Using commercial hand puppets in free play situations.
Using stick puppets to help tell a story.

z. Shadow play: (Not observed as a lesson.)

Practicing a shadow play (behind a sheet so silhouettes show through).

HS: Health and Safety.

a. Nutrition period.

Drinking juice or milk; eating cookies or some food brought by a child.
Eating food cooked at school by the children.
Teacher sends child to get the juice, etc.; matron or teacher might go themselves.
Children help set up a central table of series of tables in advance; might include spreading a table cloth.
One or more children might pass the drink and food, or teacher or matron might do it, or each child might get his own.
Quiet background music is used, from phonograph or piano.
Conversation encouraged as children wait for the food; and sometimes during the eating.
Children say or sing Grace (as a group, or one child).
Teacher encourages children to eat or drink all their food.
Each child might put his own bottle or glass on a tray, or one child might pass a tray and collect them.
Children might handle the whole milk period, organizing it, supervising, with one child in charge.

b. Foods.

Teacher asks children what they had for breakfast or other meal.

Teacher talks about what makes a good breakfast, how we need breakfast to feel good.

Naming all the pictures of food on a big chart.

Naming from memory all the vegetables or fruit one can.

Teacher brought real vegetables to class, children named them, handled them, talked about them; teacher cut them in half to show seeds.

Pictures of food were used on seatwork, for drill in likeness and difference, for coloring.

Drawing pictures of food. (Fruit or vegetables.)

Talking about how to cook and apple, other ways of preparing it for eating.

Discussing the need for milk to grow and be strong.

Discussing the importance of not drinking coffee until older.

Teacher drills children on what kinds of food are edible, what kinds of food people and animals eat.

Discussing what food we get from different animals.

c. Rest. (Rest periods, when children lay down, were not observed, since teachers wanted the room quiet and darkened.)

Children put their heads on desks for a rest.

Teacher has children sit to rest after they had been standing for a while, or sit and rest after outdoor play.

Teacher has children stand for a minute or so to rest after a long period of sitting.

Teacher asks children what time they go to bed, talks about what time you should go to bed and the need for lots of sleep.

Extra rest is encouraged during the day for any child who didn't feel well, or had some physical disability.

d. Teeth.

Discussing why we go to the dentist and how the dentist can take care of our teeth.

Teacher comments on the need to brush teeth after eating.

A child tells about a trip to the dentist he had.

Teacher checks to see how many children had brushed their teeth.

Occationally a loose tooth might lead to a talk about care of teeth and the fact that when a tooth is lost another grows back in; teacher might check to see if a tooth was loose enough to pull yet.

e. Immunization and Disease.

Discussion about going to the doctor and how it makes you feel better.

Discussion of "flu" or Polio shots, what, why, when.

If a child was out with an illness like chicken-pox, a teacher might comment about it and explain what it was.

Teacher explains need for staying in bed when sick, staying indoors with a bad cold.

Teacher might remind child to take medicine or give it to him.

Teacher isolates a child with a bad cold or cough, has child sit by heater where it is warm.

Teacher may have to help a child having a seizure, make provision for rest afterwards.

Teacher comments about a child lying down, explains that we should lie down if don't feel well.

Teacher tells class that eating the right kinds of food will help keep you from getting sick.

Teacher gives first aid in classroom: gets a splinter out, checks to see if a band-aid is needed on a sore, puts on a clean band-aid, checks to see if a child has been hurt in a fall, etc.

f. Sanitation (Cleanliness, not Self-help).

Washing paint, dust, etc. off hands after an activity.

Washing hands and face if A.M. inspection showed the need.

Teacher compliments those children who had clean hands.

During talking time, teacher asks who had baths at home, talks about the need for baths.

Learning to use their own towels.

Washing hands before helping with lunch, eating, or touching or serving any food.

Learning not to touch food with hands when passing it.

Teacher comments about not putting in their mouths objects or food picked up from the floor.

Learning to wash a potato before and after peeling it.

Teacher tells children to keep hands or objects away from mouths, reminds children not to put fingers in mouths when handling things that are not clean.

Teacher includes in a chart of "rules" a rule about not putting fingers in mouths.

Learning to swallow if drooling, or to clean off face if it had become wet from drooling.

Learning to get a Kleenex if sneezing or if nose is running.

Teacher helps a child wipe or blow his nose, or tells or shows how.

Teacher reminds children to put their hands over their mouths when they are coughing or sneezing.

Learning to keep combs used at school washed and clean.

Using a fly swatter to get rid of flies; teacher may explain why.

g. Safety.

Going out for practice in crossing the street.

Using games and drills with make-believe or practice stop-lights.

Teacher reads a story or shows a picture to help with the idea of staying off the streets.

Discussing what would happen if traffic lights weren't obeyed.

Learning about bicycle safety.

Teacher uses pictures of children on playground apparatus as a basis for review of the safe way to use such equipment.

Teacher comments or warns children about not rocking the rocking-boat so far it will tip over, being careful not to run into things with wheeled toys--to pull instead of push.

Teacher explains that tying ropes around necks is not safe; shows which pieces of furniture it would be safe to tie ropes to.

Learning to leave things in safe place: Picking up blocks off the floor, putting milk bottles where they won't get stepped on, moving a glass of water so it won't fall or get spilled.

Teacher takes a sharp piece of broken mirror away from a child.

Teacher explains that children shouldn't touch an open pocket knife that the teacher was using on a craft project.

Teacher warns children to be careful in throwing a ball so that a child's glasses won't get hit.

Learning how to turn the handles of the kettles on the stove facing in so the kettle won't fall and burn some one.

Learning to use a pot holder on a hot kettle.

Learning how to avoid a hot iron that was used in a craft activity.

Teacher talks about a child's sunburn, explains the danger and how to avoid it.

Learning about how bees will sting and how we need to be careful around bees.

Learning which things shouldn't be eaten (make us sick).

h. Posture.

Practicing walking with beanbags on heads.

Looking in a mirror to see the correct way to stand, or to compare one's posture with someone standing beside him.
Learning how to hold heads, shoulders, chins, chests, in order to stand straight.
Learning how to sit up straight, where to put feet when sitting at a desk.
Teacher simply reminds children to sit or stand straight.
Teacher tells a child to "walk like a princess" to keep from stomping along.

i. Getting a drink.

Teacher takes pains to send the children for a drink before they start another activity, or after coming in from outdoor play or recess.
Teacher encourages children to get drink of water whenever they want it.
Teacher may ask a child to get a drink "so he will feel better".

LD: Language Development.

a. Speech drills.

Teacher has child repeat a word or sound to practice it.
Teacher shows a child how to use the mouth or tongue to pronounce a word or sound.
Closing off their noses with fingers to see what happens to the "m" sound.
Feeling their throats to feel a sound as it is spoken.
Learning to relax like a rag doll.
Learning to reproduce animal or insect sounds (like bees).
Imitating the "mmmm" sound of a top.
Teacher shows pictures and asks what sound the animal in the picture makes, or the motor-boat makes, etc.
Using a clicking sound as they played horse or pretended to ride a baby on a swinging foot.
Teacher points out how different children's names begin with a certain sound.
Teacher uses a reading lesson with alphabet letters as drill in making that sound.
Teacher asks for words beginning with a certain sound.
Drawing a circle around the picture whose name begins with a sound given by the teacher.
Teacher encourages a child to speak out, talk louder, speak more slowly.
Blowing bubbles or blowing into their hands to feel the "wh" sound.

Teacher compliments a child on speaking or talking slowly.
Teacher corrects a child's use of English (using isn't for ain't).
Teacher explains how a word has more than one syllable, and helps a child say it correctly.
Telling parts of a story or answering questions in a complete sentence.
Repeating sentences after the teacher.
Saying nursery rhymes, as teacher helps with pronunciation.
Talking over a telephone (toy) for practice in talking clearly.
Naming things in a picture, etc.

b. Talking time. (Sharing Period is included here since both usually went together.)

Talking time.

Telling what they had for breakfast or lunch.
Telling what they did to help at home.
Talking about what they are going to do when they get home.
Telling what they saw on T.V., or on the way to school.
Telling what happened at a class picnic the day before.
Telling what they had seen at the circus, or were going go see.
Talking about what they wanted for Christmas, or what each child was thankful for at Thanksgiving.
Telling what they did at Sunday school.
Giving their own names and addresses.
Naming other children in the room.
Telling the names of the members of their families.
Asking questions of the other children who gave news.
Teacher encourages conversation during a free period (usually reminding children to talk quietly), during lessons such as milk period, during a break when watching T.V. Teacher asks questions to encourage talking.
Teacher introduces a lesson like art by leading a group discussion on background and motivating ideas such as holidays or pets.
Teacher gets the children to talk about their own personal interests that are related to a story the teacher is going to read.
Describing to the rest of the class how to do something.
Telling what a song was about, or talking about the kind of music they like, who their favorite performers are.
Telling about pictures they had drawn, or that the teacher held up.

Naming flannel board objects and talking about them.

Sharing time.

- Showing something brought to class, explaining about it.
- Sharing food brought to class.
- Showing a picture brought to share.

c. Writing.

Writing on papers at their desks, on the chalk board, in notebooks, or in a sample telephone book that the telephone company has prepared for school use.
Practicing making lines or circles in swinging, rhythmic motions (might keep time to a song).
Practicing letter forms and pencil control by copying words from a book or paper, tracing over words the teacher had written for them.
Writing their own names, either on seat work or just repeatedly for practice.
Writing numbers (seat work or for practice).
Writing alphabet letters, words, or sentences the teacher dictated or spelled for them (usually if more than one word, it was copy work).
Writing own addresses.
Labelling pictures they had drawn, or cut out and pasted.
Making signs, as words to study, or as signs for the room.
Voluntarily practicing writing during free activity period.

d. Reading.

Finding own name card from among all the others.
Holding up hand if own name is recognized as teacher writes the names on the board.
Indicating in some way when own name is recognized on a card the teacher holds up.
Getting or holding up own name card as teacher and class sing that name in the morning song.
Reading names of all the children as teacher held up each card, pointing to the names on a chart or on the board and reading them all off.
Playing a game where a child passes out the name cards to all the children.
Finding own names on envelopes to put away their work.
Finding own names on towels, books, Christmas packages.
Finding own name, putting it on the work chart by his job for that day.

Teacher writes child's name on his paper and asks him to read it.
Reading the names of all the children, to pass out their crayon boxes, books, etc.
Matching name cards.
Matching own name card to name over their towels.
Review reading of schedule of what they were to do that day.
Review reading of written rules (of limits) that the class had helped set up and teacher had written on a chart.
Reading directions on seat work papers (with teacher's help).
Reading what they had written on their own seatwork.
Reading from recipe books the teacher had developed for them.
Reading from a post card that was received in the mail.
Reading the date from a calendar.
Finding the word that goes with a flannel board picture; matching any word to a picture.
Teacher gives beginning sounds as clues in word recognition.
Reading words in unison with the teacher.
Reading from the big charts that come with Basic Series.
Reading words underneath a picture on a chart.
Reading a label on an object.
Reading pictures or words in a readiness book.
Reading the words in a simple book (older children).
Reading pictures and/or stories in "My Weekly Reader".
Going through a series of word cards in a game to see how many they know.
Reviewing the words from common signs, on word cards. (i.e., "Exit", "Keep Off The Grass", "Wet Paint", etc.)
Learning to read alphabet letters, on drill cards, chalk board, or in their names.
Finding an alphabet letter asked for and putting it on the flannel board; when all have had a turn the letters spell a word.
Finding a certain letter on an alphabet chart.
Telling which children's initials were marked on a target they had been shooting at.

e. Story period.

Teacher uses flannel board characters to help tell a story.
Teacher tells a story, with gestures (no book).
Teacher describes a child and makes up a story about him.
Teacher tells the story of a song.
Children tell any story they wish.
Child repeats a story in his own words after hearing it.
Teacher asks children what comes next in a story, or asks questions about what has happened.

Each child tells a story about a picture he was given.
Children tell stories as they manipulate cut-outs of farm and story characters.
Teacher reads story from "My Weekly Reader".
Teacher reads Bible story, Sunday school story.
Teacher reads a poem to the children.
Teacher reads mail the children have received.
Children listen to stories on records, may look at accompanying picture book.
Teacher uses film-strip stories, has children tell the story.
Children watch T.V. or movie stories.

f. Roll call. (Included under Language Development because it so often included some type of language activity.)

Answering "here".
Giving first and last name.
Getting or pointing to own name card; may point to own name card in several different places in room.
Giving news.
Introducing themselves.
Class sings "Jim is here today" as child stands.
Giving own addresses.
Telling who was present or absent, how many were present.

g. Listening skills.

How to listen.

Teacher tells children to listen carefully.
Teacher reminds children to look as well as listen so they could remember what was happening.
Teacher reminds children to use their ears but not their mouths in listening.
Teacher tells children to sit up straight and sit quietly so they can listen.
Teacher tells children to put their work away so they can listen better.
Teacher says they will wait to start until everybody is listening.

Motivating listening.

Teacher tells children to listen good so they can answer questions later.
Teacher tells children to watch the leader so they will know what he tells them to do.
Teacher has other children listen as one child reads

something to see if they could hear or if it was read correctly.

Teacher asks child to be quiet and listen when another child is talking so people will listen to him when it is his turn.

h. Unison speaking.

Saying flag salute together.
Joining in nursery rhymes, finger play rhymes, counting rhymes, or speech rhymes.
Saying refrains in story like the "Gingerbread Boy".
Saying the days of the week together.
Saying the words of a song.
Counting or saying numbers in unison.
Saying or reading words in unison; reading in unison from an experience chart.
Saying a prayer together, or Grace before eating.
Saying Bible verses together.
Children seem to like this unison speaking because it was occasionally used spontaneously in a sing-song way while waiting for some other activity to start or finish.

j. Spelling.

Teacher comments on how to spell a word teacher or child is writing.
Teacher asks child how to spell his name or some other word.
Teacher asks child to spell a word he has written on his calendar or other seat work.
Using the See and Spell game.
Using a printing set to make the words.

k. Reading pictures.

Naming objects in pictures, telling what is happening.
Saying the Bible verse that goes with a picture.
Telling about a picture brought to school to share.
Telling which nursery rhyme goes with a picture.
Answering questions about the pictures in a story book, magazine, scrap book.
Telling about a series of pictures that were cut out and mounted.
Telling about the pictures on Christmas cards.
Looking at books and magazines in free time.
Telling about the picture in a song book.

Telling what picture was found in a pattern.
Telling about a film strip picture.
Telling about the pictures on puzzles, on a matching card game, on seat work papers.
Identifying children who were in a photograph taken at school.
Finding details on a circus or number or story chart.
Telling about pictures in "My Weekly Reader".
Telling the picture story in the Big Book or reading chart of a Basic Series.
Naming the pictures in a readiness book; telling what was happening, answering questions about the pictures.
Underlining the right picture in a series as the teacher named it.
Finding the picture that would answer a question the teacher asked. (Which one do you ride in? Which one do we eat?)
In a speech drill, naming the picture or telling what sound the object in the picture makes.
Drawing something seen on a picture.
Teacher uses pictures as visual aids in any type of lesson.
Teacher uses a picture of a child crying as the basis for a discussion of what makes us cry, what we can do when someone cries, etc.
Children ask questions about a picture another child is showing.
Children tell the story in a picture they had made themselves.

MM: Music.

a. Singing.

The lesson.

Teacher accompanies songs on a piano.
Children sing with records.
Two classes get together for a singing period.
Children go to assemblies of the whole school, sing there
Teacher or children choose the songs.
One child acts as leader, keeping time to the song.
One or two children run the song period, calling on other for suggestions, leading the singing.
Children hum a song, as well as sing it.
One or two children sing a solo.

Types of songs.

Religious songs (Sunday school, spirituals).
Songs from children's song books.
Action songs (to which the children make movements).

Songs about holidays.
Popular or T.V. songs. (Commercials, Mickey Mouse, etc.)
Finger play songs.
Number songs.
Nursery rhyme songs.

Use of songs.

Singing while working.
Singing to individual children during roll call; singing answer.
Singing about the weather, during a lesson on that day's weather.
Playing singing games.
Singing as they danced during a rhythms period.
Singing as they do exercises.
Singing "Happy Birthday" to someone.
Singing a song that goes with a picture in another lesson (Little Red Caboose).
Singing with a phonograph story record.
Joining in a song as they watched T. V.
Singing a song that went with a film strip.
Singing a rhythmic song during writing period.
Singing Grace before a meal.
Practicing group and solo singing for a show or party.

b. Rhythms.

Marching during a flag salute period or in rhythm period.
Skipping to music.
Doing imitative rhythms such as imitating animals, skating, galloping, etc.
Doing folk dancing and singing games such as the Virginia Reel.
Dancing to a song (Shoemaker's Song).
Doing a polka dance with partners.
Practicing ballroom dancing (simple step-slide, waltz).
In one class, high school girls came in and taught the children to do some "bop" dancing.
Doing a dancing game, where the children had to stop when the music did.

c. Clapping and keeping time.

Clapping as they marched to music, as they sang a song, as they listened to a record.
Singing a clapping song.

Tipping fingers against each other in time to music.
Tapping their hands on knees in time to music.
Stamping their feet to music.
Using a stick and taking turns beating the time as the rest sang.

d. Rhythm instruments.

Using rhythm sticks to beat time.
Using the various instruments with simple tunes.
Using the instruments as they marched.
Learning to use the instruments fast or slow with different kinds of music.
Learning to come in at the right place and to stop when the music stopped.

e. Appreciation (listening).

Listening quietly to records.
Responding to records with gestures, etc.
Bringing favorite records to school for others to hear.
Learning to put the records on the record player; running own listening period, or one child listening to records in free time.
Listening to quiet background music during another period. (Teacher might use "mood music" to quiet the children.)
Listening to the piano, telling what song it was, what it made them feel like, or what it sounded like, etc.
Listening to the school band practicing outside.

OE: Occupational Education.

v. Planning the day's work.

Using a chart on chalk board or wall or flannel board; putting children's names after a sketch which showed the job they had volunteered for that day.
Putting children's names on paper with the name of their jobs and posting this paper so children could refer to it later.
Teacher chooses children for certain jobs; may count off.
In one class, jobs assigned during cooking were written up in a planning and recipe book the children used.

w. Following printed directions.

Teacher shows children the word "top" on an object so they would know which was the right side.

Reading and following directions on seat work papers (color the ball red).
Learning how to follow pictured directions for block building.
Using recipes.

x. Learning to use tools (any implements used at home or school).

Learning to use a stapler, paper punch.
Learning to use paint brushes.
Using needles, learning to thread them.
Practicing with rolling pin and cookie cutter on Pla-Do.
Learning to use coping saws.
Using a pocket knife to trim ends in lacing.

y. Work habits.

How to work.

- Teacher tells children to keep busy, get busy, find something to do.
- Teacher reminds children about a job to do.
- Teacher reminds children to work quietly, slow down, work more slowly, take their time, etc.
- Teacher compliments a child for having worked hard.
- Teacher encourages a child to keep at his work.
- Learning not to skip around on what is being done, to do each one as he comes to it (usually on seat work).
- Teacher tells a child not to stop until his work is finished, to finish what he has begun.
- Teacher checks to see if a child has done what he is supposed to have done when he thinks he is finished.
- Learning to compare one's work with a model, to see if it really is finished and looks the same.
- Teacher tells a child just to take one book at a time.
- Teacher shows children how to keep their work together so it won't get in another person's way.
- Teacher explains how to open and take care of crayon boxes, where to put crayons so they won't get knocked off desks or roll off.
- Teacher shows children how to arrange materials so they won't get all mixed up together.
- Teacher has children move over so they won't get in each other's way.
- Teacher shows how to roll up sleeves before starting to paint.
- Teacher tells a child the best place to use the big blocks is on the floor, not on the tables.

Teacher explains that a child will get dirty if he crawls on the floor, to stoop to pick up things.

Taking care of materials.

Teacher tells a child he has had enough of something, not to take any more.

Teacher tells a child to be careful with materials, take care of them, use them right, not drop them, etc.

Teacher has children use both sides of the paper so it will last longer.

Teacher explains they should use something all up before asking for more.

Teacher shows how to put brushes in water jar so brushes won't harden from the poster paint.

Teacher has children save their scraps so they can be re-used (clay or paper).

Children are cautioned to watch food that is cooking so it won't burn; to close the refrigerator door so coldness won't be lost.

Clean-up.

Teacher makes sure the children put their materials away.

Teacher emphasizes the importance of returning things that they took home overnight.

Teacher explains how to put work away so it will be convenient for later use.

Children put finished work up on bulletin board.

Learning to sweep or pick up things from floor.

Brushing crumbs off clothes or chair into the waste basket.

Teacher reminds children to put lid back on paste jar.

Teacher has child pass the waste basket for others to use.

Washing brushes, washing paste from utensils, cleaning off a table, wiping up something that was spilled.

Erasing a board, clearing off desks.

Putting chairs under the table when finished.

Teacher shows children where to put their fingerpaints or easel paintings, etc., to dry.

Teacher comments on the reason for clean-up and the need for it. ("Have to clean up when mess up; can't find things next time if they are not put away where they belong.")

Neatness.

Teacher has a child erase some work and do it over more neatly and carefully, or throw something away and start over again.

Teacher or child inspects children, their work, grooming boxes, etc., to see if all is neat and clean.

z. Kinds of jobs.

Teacher talks with children about the kinds of jobs that the children could do to help at home.

Discussing the kinds of jobs that need to be done in the classroom.

Discussing what a storekeeper's job is before playing store.

Talking about the kinds of jobs after a visit to a store, etc.

Learning about the school janitor's job by working with him during the day.

PA: Practical Arts.

a. Cooking.

Cooking a complete meal (and eating it) at school.

Describing how they cooked hot dogs at the class picnic.

Talking about helping to cook at home.

Talking about other cooking experiences at school.

b. Sewing.

Sewing buttons in patterns on cards.

Using sewing cards to follow lines and outline a picture.

c. Dishwashing.

Helping the matron or cook wash up the dishes after a food period.

Washing their dishes after lunch; learning to scrape, wash, dry.

Washing dishes after a cooking lesson.

e. Cleaning.

Sweeping the floor after an activity period.

Dusting the furniture as part of daily chores in the room.

Learning to use a broom and dustpan to clean the floor.

d. Gardening. (No real lesson observed.)

Commenting about seeds that had been planted in pots at school.

Discussing how to help with the gardening at home.

f. Setting the table.

Helping to set the tables for juice period.
Helping to set tables for lunch.
Setting a table for breakfast they had cooked.
Practicing table setting with doll dishes or a real setting.
Comparing a set table with a model.
Teacher inspects and corrects a table setting.

g. Chores around the room.

For food period, getting the juice, etc., wiping off tables, setting tables, clearing tables.
Getting out cots and setting them up.
Getting water and watering plants.
Feeding fish, turtles, changing their water.
Dusting furniture; inspecting coat room to see that coats were hung neatly.

h. Preparing foods.

Preparing oranges.
Fixing a breakfast.
Peeling and washing potatoes.
Opening and pouring a can of juice.
Spreading butter, peanut butter on crackers.

i. Encouraging the children to help at home.

Teacher asks children what they did at home, encourages them to help.
Teacher asked how many helped their mothers fix vegetables.
Teacher suggests children help with the garden at home.
Teacher explains that when they learn to cross the street safely they could help at home by going to the store, running errands.
Teacher has children tell all the possible ways of helping at home.

SH:a. Serving and clearing the table.

Passing milk or juice.
Passing food brought to share.
Serving themselves with juice.

Clearing the glasses, taking glasses off on a tray.
Clearing table after lunch, etc.

PE: Motor Development.

a. Games.

- Ring toss game.
- Rolling a ball to knock down blocks.
- Beanbag toss and catch game; tossing a beanbag into a box.
- Playing "who has the thimble".
- Playing "Jack jump over the candlestick".
- Playing follow the leader.
- Playing "Simon Says".
- Blindfold games, where one child has to guess who touched him, or who took the bean bag, etc.
- Drop the hanky (may sing "A tisket, a tasket" with this).
- Singing games, such as "Farmer in the Dell", "Have you seen a Lassie?".
- Chanting "Teddy bear, teddy bear" as they go through the actions without a jump rope.
- Musical chairs.
- Teacher makes lessons into a game, by keeping score, etc.
- Rhythmic activities may be called a game.
- Using an auditorium or gym for running and ball games.
- Playing games, running, ball, etc., at recess outside.

b. Skills.

- Throwing and catching beanbags and balls; tossing a ball at a target or hoop; bouncing a ball; rolling or bowling a ball.
- Using a bubble stick or pipe.
- Aiming and shooting target guns.
- Pumping a mechanical top to spin it.
- Swinging a baseball bat.
- Riding a bike or wagon.
- Using a slide and climbing bars in the classroom.
- Using a rocking boat (that can be turned over and become stairs).
- Practicing riding on a bouncing hobby horse.
- Learning to pick up and hold a chair, to carry it.
- Learning to open and set up a folding table, cot, movie screen.
- Jumping for height or distance.
- Practicing lifting their knees and feet high when walking; skating or sliding feet across the floor.

Learning the correct way to walk, run (on toes, leaning forward).

c. Manipulative skills. (Fine coordination; might come in any activity during the day.)

Arts and crafts.
- Gluing or pasting.
- Modeling clay.
- Doing loop weaving, other weaving.
- Lacing the edges of objects or scrapbooks.
- Using stencils, tracing patterns or objects.
- Folding paper.

Manipulative toys.
- Pegboards, puzzles, nut and bolt sets.
- Bead to string.
- Playing with blocks, large cardboard blocks, Lincoln Logs, Tinker Toys.
- Using a marbles board (putting marbles in patterns).
- Hooking together parts of a train; manipulating wheeled toys such as trains, cars, trucks, etc.
- Fitting color cone sections over the center peg.
- Using the sand box.

Games.
- Ball or beanbag games; ring toss.
- Playing with a rope.
- Shooting a toy gun.
- Spinning the arrow in a marker.

Equipment.
- Manipulating scissors and paper.
- Learning to put on a record and inserting the needle.
- Pointing with a long stick (to words or pictures, etc.).
- Using paper punch, potato peeler, cookie cutter.
- Learning to shake and manipulate rhythm instruments.
- Using a needle, pencil, chalk.
- Using a printing set.
- Sorting objects; stacking cards.
- Wringing out a washcloth.
- Putting pieces on a flannel board.
- Putting objects in envelopes, closing the flap.
- Folding napkins, blankets, towels, etc.
- Tying knots in thread, tying shoelaces, lacing shoes.
- Polishing shoes.

Fitting plastic stand on bottom of cut-out story figures.
Prying the lid off a can.
Using sandpaper correctly.

d. Finger play.

Saying finger play rhymes.
Singing finger play songs.
Using finger play with records.

e. Free play.

Teacher suggests something for child to do.
Teacher has each child tell what he wants to do, before starting.
Part of the class does free play while teacher works with a sub-group.
Those who finish a lesson first do free play while waiting for the rest.
Children use wheeled toys (bike and wagon) in room during free play period.
Using play house, blocks, other game activities around the room.
Using small manipulative toys at seats.

f. Exercises.

Teacher or child leads in a series of exercises.
Doing exercises to a song or verse.
Going through the actions of a school yell.
Stretching or doing exercises after a sitting period.
Teacher sends one child to next room to run and jump and work off some of his energy.
Child with a crippled hand was encouraged to exercise it in different activities.

g. Outside play. (Not observed in detail, since not an equal opportunity to observe in all cases.)

Teacher sends children outside to play, with matron or by themselves.
Teacher goes outside with children, participates in play.
Part of class goes out while the rest are working on something special in the room.
Children take partners and line up when ready to go out.
Children get equipment such as balls, beanbags, bikes, wagons, scooters, to take out.

Teacher and matron help with getting coats on and off.

S: Socialization.

u. Social Techniques.

Shaking hands with each other and with visitors.

Learning to say "How do you do", and tell one's name as an introduction.

Teacher explains to the boys that gentlemen don't wear hats in the house, that boys should let girls go first, that a boy should be a gentleman and carry a chair for a girl.

Learning how to take partners for dancing.

Learning to take a bow when applauded for a performance.

Teacher explains that we don't kiss people, we greet them by shaking hands and saying hello.

Discussing why we need to be good citizens and not disturb people when we go down the halls.

General discussions about what is the nice or polite thing to do.

Learning how to line up, wait in line.

Learning how to move over and make room for another person to sit.

Learning to be quiet so the children in another part of the room could hear a lesson.

Learning not to sit in front of someone so they couldn't see, not to walk in front of people, or pass something directly in front of them.

Learning not to crowd in front in a line or in a group.

Saying you are sorry when you did something you shouldn't have done.

Teacher explains that we don't laugh when someone gets hurt.

Learning to wait until everyone is ready before beginning an activity (teacher explains that sometimes we have to wait and watch while somebody else gets something done or while we are waiting our turn).

Learning not to put feet up on chairs.

Learning to say "Excuse me", "Please", "You're welcome", "Thank you" or "No, thank you", or "May I be excused".

Answering "Yes, ma'am", "No ma'am".

Asking for something politely, not just saying "hey" to someone.

Learning manners on the telephone.

Table manners.

Sitting before getting served.

Learning how to ask for food to be passed.

Waiting to eat until host or leader is seated, all are seated and ready to eat.
Waiting to pass seconds until everyone is finished.
Waiting to leave the table until everyone is finished.
Teacher explains that it is not polite to rush people with their food, that they should be given a chance to finish.

v. Respect for the property of others.

Teacher explains that something belongs to someone else and they should leave it alone.
Teacher uses the story of "The Three Bears" to get over the idea of not going into other people's houses unless asked.
Teacher explains that they should sit in their own chairs, not somebody else's.
Teacher might just ask a child if something he is using belongs to him (in a warning way).
Teacher explains you don't make marks on someone else's paper unless you want them to make marks on yours.

w. Sharing.

Sharing equipment or materials such as paint brush or jar, pegs for the pegboard, papers, or crayons.
Bringing food, etc., to share with the class.
Teacher comments how she likes to share with them, or that they will share something.
Sharing things like swing or wagon at outside play.
Sharing equipment such as the rocking horse or wagon (two or more using it at once).
Letting someone else use something you are not using right now.
Teacher asks a child to borrow something he needs from another child.

x. Taking turns.

Teacher comments about taking turns in some activity or games.
Children or teacher check to see if everyone has had a turn.
In a game, teacher reminds a child to choose someone who hasn't had a turn.
Teacher compliments children on how well they are waiting for their turns.
Teacher tells child it is his turn, someone else's turn, that he's already had his turn, to wait his turn.

Teacher reminds child to listen for his name so he will know when it is his turn.

Teacher asks who wants a turn.

Teacher tells children "One at a time", or "You're first, you're next", etc.

Teacher explains to the children that in a fire-drill they have to wait their turn to go through the outside door.

Teacher reminds children to wait until someone is through before taking a turn, or cautions a child that he is through and to let someone else have a turn.

y. Getting along with people.

Exhortation by the teacher: treat people nice, play nice, be kind to people, love people, be friendly, don't hit, don't kick,don't shove, don't fight at school, don't put hands on others or touch others, don't quarrel, don't tease.

Teacher has boys shake hands after a fight.

Teacher reminds children about "rule" on chart about not fighting.

Teacher tells child to give back something he has taken from somebody else.

Teacher asks child to let another child play with him.

Teacher explains that when we get hungry we sometimes get upset and that if we know this maybe we can keep from losing our temper.

z. Helping others.

Helping other children.

- Helping another child with school work.
- Helping another by prompting him.
- Showing another how to do something, like toeing a line, throwing a ball.
- Inspecting the others to see if faces are clean.
- Going as a buddy with a less capable child who needs to wash up.
- Helping another child sing a song.
- Helping another with his job for the day.
- Helping prepare food for the class.
- Helping calm a hyperactive child by working or playing with him.
- Hanging up a coat for a child.
- Helping interpret what another child is trying to say.
- Tying shoes for another.

Putting up the crutches for a lame boy.
Fixing the desk top for another child.
Unscrewing a jar top for another.
Carrying a chair for a child.
Reaching something down from the top of the cupboard for a shorter child.
Teacher comments that a boy should help his sister at home.
Teacher reminds someone to let someone else help him.

Helping teacher.

Holding up a picture during a lesson.
Picking up something teacher dropped.
Buttoning up the back of the teacher's apron.
Helping move furniture.
Helping clean up.
Helping teacher remember to do something later.
Fixing something another child had left undone.
Helping put a chart up on the wall.
Helping pull the curtains.
Helping the school nurse or janitor.

Miscellaneous.

Standing up front and keeping time during singing.
Passing food, napkins, etc., at nutrition period.
Being hostess or leader for the day.
Going on an errand with another child.

SC: Science Concepts.

a. Pets.

Orientation.

Pets were introduced through songs, poems, pictures, stories in a book, film strips, stories in "My Weekly Reader", through use of story or farm animal cut-outs, through a large chart with pictures.
Teacher might use pets to motivate talking-time or any lesson.
Teacher used as a basis for discussion a puppy a boy had brought to school.
Discussing usefulness of animals, how they help us.

Care of pets.

Teacher talks about need of being kind to animals.
Discussing how to take care of pets, what they need: food, water, a place to stay, to be kept clean.

Discussing what pets need to eat.
Feeding and taking care of fish, turtles, birds, rabbits at school.

b. Growth of plants, seeds, leaves, etc.

Orientation.
Discussing the trees seen in bloom on the way to school.
Talking about leaves falling, looking at colored leaves the teacher brought in, singing songs about fall leaves.
Teacher reviews with the children the names of flowers and brings in the flowers for the children to see and practice naming.
Teacher comments on flowers the children bring to school.

Care of plants.
Teacher reads a story about plants growing.
Talking about the kinds of vegetables that grow in a garden, with pictures for discussion; telling about what grows in their gardens at home.
Talking about what flowers need in order to grow, how to take care of plants.
Watering plants in the room.
Looking at seeds they have planted to see how they are sprouting; talking about what seeds need to keep them growing.

c. Nature study.

Talking about farmyard animals and what they eat.
Teacher uses a chart with animal pictures and asks what their names are, perhaps reviews the sounds they make, and explains something about how the animals live and what they do.
Talking about zoo animals, reading a story about zoo animals.
Coloring or cutting out animals as seat work.
Teacher reads a story about wild animals or birds.
Singing about different birds; talking about the birds in their songs.
Learning to recognize birds from their pictures.
Teacher comments about birds in pictures: what they do, what they eat, how they live.
Children go over to the window and watch the birds outside.
Talking about insects, caterpillars, animals, birds seen at the class picnic.

Teacher reads a story about bees or butterflies, talks about their habits, how they develop.
Teacher tells story about a pollywog and a frog, and how the pollywog becomes a frog.
Teacher reads a story about the stars, explains the idea of the north star being used for direction.

d. Magnets and other physical forces (no direct observation).

Magnets were in the room for the children to play with.
Electricity and steam were mentioned during safety lessons.

e. Weather.

General orientation.
Teacher comments about the weather--how hot or cold it is, the color of the sunrise, frost when they got up.
Singing songs about weather.
Teacher relates the weather to a story she is reading.
Teacher shows a picture of a rainbow, talks about rain and sun and why we need them.
Teacher relates thermometer reading to the weather that day.
Children help fix a weather calendar with symbol for that day's weather (sun, cloud, etc.).
Teacher talks about the things you can do when the weather is good or bad, the need to wear different kinds of clothing in different weather.
Discussing when to use an umbrella.

SH: Self Help.

a. Washing.

Singing a song about washing hands.
Teacher or child inspects hands to see if they have been washed clean, sends children who need it to wash; children may do it alone, or with supervision.
Teacher shows how to put plug in basin, turn on the water, wash, rinse, wring out wash rag, how to use wash rag or towel, how to get hands dry, etc. (description, demonstration, putting the child through the motions).

b. Grooming.

Teacher encourages children to come to school clean, describes how they should take baths at home, shine shoes.

Teacher comments on how nice or neat a child looks.
Teacher or child inspects children to see if they are clean, nails clean, teeth brushed, hair combed, etc.
Good-grooming boxes were used, in which a comb, nail file, Kleenex, hand lotion, etc., were kept (usually a cigar box covered with paper).
Learning how to use hand lotion, how to put on nail polish.
Learning to comb hair, arrange hair so it wouldn't fall in eyes.
Learning how to shine shoes, how to use a shoe horn, cleaning mud off shoes, keeping laces tied.
Teacher asks child to go look in the mirror to see where his face needs cleaning.

c. Toileting.

Teacher reminds child to go to lavatory, takes child to lavatory, supervises child in lavatory, gives instruction.
Teacher reminds child not to take his pants down till he is in the lavatory.
Teacher explains to child how to use and flush the toilet.

d. Dressing.

In one case, teacher had brought clean clothes to school for one child, and every morning the child dressed in the clean clothes, changing back before going home.
Learning to work a zipper, button up painting smock, fasten belt, tuck in a shirt and keep it tucked in.
Putting on coats and sweaters before going out, taking them off when coming in. (Teacher or matron might help, or just give explanation or directions.)
Hanging up coats and sweaters at school.
Teacher helps child put on socks and shoes, tie shoelaces.
Learning to tie shoes, practicing with real shoes, wooden shoe. (Teacher might guide child's hand through the movements, or just give directions.)

e. Eating.

Learning manners at the table.
Learning how to ask for what they wanted.
Learning how to spread peanut butter with a knife.
Learning to eat with lips closed.
Learning to drink without spilling or gulping.
Learning to take small bites or handfuls.

Teacher might instruct a child who was physically handicapped, in how to hold a cup or utensil, self-feeding.
Learning to wipe hands and mouths after eating and drinking.
Learning to drink with a straw; learning to drink from a glass.

g. Toothbrushing.

Learning how to put toothpaste on, how to wet the brush, how to brush in an up and down motion, how to rinse the mouth.
Practicing toothbrushing after meals, under supervision by teacher or matron.

SS: Social Studies.

a. Learning about home and community.

Teacher talks about what a good citizen should do.
In one class where the father of one of the boys was running for an office, the children were introduced to the concept of voting.
Using dramatic play to learn how to cross streets; taking real walks to visit stores and other community facilities.
Learning the kinds of stores, what is in a pet store, grocery store, drug store, etc.
Talking about local parks and other community recreation facilities.
Visiting newspaper offices; talking about a newspaper, what it is, what is in it.
Talking about a ball game, P.T.A. program, or other type of school entertainment or activity.
Talking about where children live; naming people in their families; telling what work father does; telling about family activities over the week end (fishing trips, etc.).
Learning what a policeman does, how he helps us.
Talking about the milkman, playing milkman, and delivering toy bottles.
Teacher talked about the post office, what it is for, shows children how they can play post office; children mail letters.
Playing store, buying "pretend" food (children had brought empty cans and boxes).

b. Holidays, flag (cultural factors that might vary from country to country).

Flag.
Teacher or child leads the flag salute.

Children say a simplified pledge "I love our flag and our country" as they salute.
Teacher asks one or two children to say the pledge by themselves.
One child holds the flag as the class salutes.
Singing "America" or some other patriotic song; marching with the flag (after the salute).
Answering questions about the flag--what color it is, what it stands for, what is on it, etc.

Holidays.

Having a party at school to celebrate a holiday.
Drawing pictures about holidays.
Singing holiday songs.
Learning what a holiday is, the story about it.
Talking about Santa Claus, what he might tring, what they want for Christmas.
Teacher uses holiday cut-outs, such as stars and bells at Christmas, as visual aids or to motivate other lessons.
Teacher points out holiday on the calendar.
Making or wrapping presents.
Telling what they will be doing Hallowe'en night.
Teacher explains about a Jack-O-Lantern, why they have it, how it is made, etc.
Telling what they were going to eat at Thanksgiving; what they have to be thankful for.
Talking about a card they were going to make for Mother's Day, with their picture on it.

c. Transportation (no specific lesson observed).

Using pictures or charts of vehicles.
Using toy trucks, trains, planes, etc.; talking about their use.

d. Chapel, Grace, etc.

Teacher reads a story from the Bible, or an adapted story.
Talking about going to Sunday school or vacation Bible school.
Teacher reads a story from a Sunday school book or card.
Teacher asks children what they saw on the way to school that Jesus made.
Saying Bible verses, Psalms.
Teacher interprets the meaning of the Bible verses, songs, or Psalms, ties them in with what the children should do (i.e., ethical behavior "do unto others....").

Teacher holds up picture cards and children give the appropriate Bible verse.
Teacher and children say a morning prayer; teacher reads a prayer; singing a prayer.
Singing Sunday school songs, spirituals, and the holy songs for Christmas, etc.
Teacher explains the meaning of Christmas, tells about Baby Jesus and His birthday, tells the Christmas story.
Singing or saying Grace before meals.
Teacher shows a picture of a family saying Grace, talks about the need for thanking God for the food.

e. Month, day, week (names and concepts).

Teacher asks what time of year it is, talks about the nature signs of that particular season.
Teacher tears a page off the calendar as a new month begins, reviews with the children the names of the old and new months.
Teacher has children say names of days of week, names of months.
Teacher asks children for names of today, tomorrow, yesterday.
Singing a song about the days of the week.
Teacher asks how many days are in a week, which days they come to school, what day a holiday comes on, what they do on Saturday or Sunday when they don't come to school.
Reviewing on their own seat work calendars the day and the month and the year, writing them down; may copy day, month, year off the board.

f. Conservation (no direct lessons observed).

Teacher talks about need for not walking on lawns, not picking flowers in parks, the need for taking care of growing things, not harming wild animals (as part of another lesson).

g. Learning own names and addresses.

Telling own names, where they lived, addresses.
Learning to write their own names and addresses.

h. Fire drills (should be part of safety, except that they are city wide).

Children participate in fire drills with rest of school.

ST: Sensory Training.

x. Color discrimination.

Teacher comments about the color of something.
Teacher tells children what the colors are, explaining their names and how they are alike or different.
Matching two colors, in a card game, a puzzle.
Putting a mark on pictures of objects that are the same color.
Sorting objects by color.
Comparing a color on a chart with something a child is wearing.
Picking out one color among several on a chart or among crayons.
Finding an object of a specified color in the room; naming familiar things that are all the same color.
Drilling on stop and go colors.
Using color clues in numbers.
Finding a certain number of a certain colored object; counting the number of objects that are of the same color.
Pointing out a color in a picture.
Holding up a block of an asked-for color.
Telling the colors of objects on a flannel board.
Using drill cards of colors (if child knows that color he gets to hold the card, etc.).
Telling all the colors on a color chart, what colors are in a picture, a book, on blocks, in the flag.
Teacher explains what colors belong to or fit certain things, such as fruit, etc.
Coloring a picture according to the color words written on each section.

y. Visual and auditory discrimination and memory.

Visual discrimination.

Copying words from a book.
Copying a pattern the teacher is building with blocks.
Imitating a leader in a game.
Imitating fast or slow movements of a leader during exercises.
Imitating movements in dancing.
Watching a demonstration and trying to do it later.
Putting a finger on something asked for in a picture; telling details in a picture.
Indicating likenesses and differences in shapes on the flannel board or seat work.
Rearranging objects on a flannel board to make each line alike.

Comparing two objects in shape or size.

Stacking dishes of same shape together.

Sorting play money in the cash register.

Sorting word cards from number cards; sorting anything by color, shape, size.

Picking out the toys that were the same in a row of objects.

Learning to stay inside the lines while coloring, or on the lines while tracing.

Outlining a picture heavily to help in coloring.

Matching the correct number of counting blocks to dot cards.

Fitting the correct shapes together in puzzles.

Building with blocks.

Matching and sewing buttons to dots on cards.

Matching pictures, colors, numbers, name cards.

Finding words in workbooks to match cards the teacher holds up.

Finding a page number to match the one the teacher shows.

Finding the matching picture for an object like a flower.

Comparing their work with a model to see it is done correctly.

Aiming a gun.

Noticing in crafts which side of the object should go up or down.

Auditory discrimination.

Listening to music to know when to begin the singing or actions.

Remembering to use gestures instead of words at the right places in a song.

Listening for a change in the music so the dancing or rhythm can change.

Stopping when the music stops, as in musical chairs.

Imitating a note played or sung by the teacher.

Going fast or slow, loud or soft, in imitation of teacher in a speech drill, singing, rhythm band, etc.

Holding or cutting off short a musical note as the music requires.

Playing Song Lotto (listening to a record, marking the picture that goes with the song).

Comparing sounds to see if they are alike or different (animal sounds, instruments, etc.).

Deciding what different instruments are playing on a record.

Listening for beginning sounds in words.

Relating actions to a sound (holding up a card at the right moment, making the right gesture, etc.).
Following printed words in a story as the teacher reads aloud.

z. Training other senses.

Spatial relations.

Learning concepts for over and under; using them in weaving.
Learning right and left hand and foot (Looby Loo game).
Learning to place knives and forks in the right positions.
Learning "wide" and "narrow" in comparing objects.
Learning "largest", "smallest", in putting parts of a color cone together.
Learning directions "up" and "down" in drawing and writing.
Learning the concept of roundness, in drawing apple or circle on floor for a game.
Learning to judge sizes and shapes on puzzle pieces.
Figuring out relative positions when putting eyes, nose, mouth on Jack-O-Lantern or snow-man, or in fitting a specified number of objects on a paper.
Noting colseness to a target in throwing beanbag or ball, shooting a target gun, rolling a ball at a block.
Learning directions North and South.

Sense of touch, feel.

Feeling objects to help in judging size, weight.
In one class, a boy who was hard of hearing was asked to put his hand on the piano to follow the rhythm through the vibrations.
Telling from the softness of clay when it is ready to work; has children feel leaves, comments on their feel.
Playing a game where they feel something through a bag and try to guess what it is.
Feeling speech sounds in nose, throat, etc.

TS: Mental Development.

u. Creative (letting children do things their own way, activity not structured entirely by teacher).

Pasting figures and designs from wall paper books to make their own designs.
Making own figures with building blocks.

Making original shapes out of clay.
Doing easel painting, finger painting.
Making original pictures with crayons.

v. Repeating from memory.

Singing solo songs, solo echoes.
Saying from memory the words of a song, nursery rhyme, T.V. jingle, Bible verse or Psalm.
One child says Grace for whole class.
Saying the names of all the children in the room, days of the week.
Naming all the vegetables they could think of.
Naming or pointing to everything on a circus chart the group had been talking about.
Re-telling a story.
Listing all they could remember seeing at the picnic the day before.

w. Imagination.

Talking about what the block shapes might represent.
Telling what might happen next in a picture.
Playing any type of "make-believe".

x. Concept building (runs all through the day in any lesson).

Teacher defines or explains a word.
Teacher explains what certain objects are in pictures.
Teacher demonstrates or shows what a word means.
Teacher explains a situation, what it is, what it involves.
Teacher explains a consequence of action.
Teacher reads or tells a story to explain a more abstract concept like growth.
Discussing an idea or meaning in a story, song, etc.
Teacher explains what certain things are used for, their function.
Teacher explains how something works, why it does or doesn't work.
Teacher asks questions about what the children are drawing, to give other ideas.
Teacher explains what is involved in a job like policeman's.
Teacher relates a color to something they know.
Teacher explains what a number is, relates numbers to objects.
Teacher helps develop a concept of time by talking about the time certain activities come, or how long vacation is.

Teacher explains a category, such as animal, bird, food, etc.; has children list things according to categories.

Teacher explains difference between boy and girl, drills children on whether they are boy or girl.

Teacher explains that "Sir", "Ma'am", "Mr.", "Mrs." refer to men or women.

Teacher explains difference between real and make-believe, using toys and real objects (telephones, etc.).

Learning to use the correct word in a sentence so the sentence says what the child thinks it does.

Teacher explains that some words show it is happening now, and some that it happened a while ago (tense of verbs).

y. Problem solving (making decisions, making judgments, evaluation, guessing, giving reasons for things, inference, solving manipulative problems).

Teacher uses guiding or clue questions to help a child figure out an answer.

Teacher asks a child to make his own decisions on where to begin, what to do, or how to do a thing.

Teacher cautions other children not to help another but to let him figure it out for himself.

Teacher asks children to give reasons why something might be happening as it is in a picture.

Teacher has children make decisions about what they want to do in free play period.

Teacher has one child choose another to be "it", or do a certain job.

Teacher has a child decide which three children he will name in his song.

Teacher leaves it up to the children to decide when their work is finished.

Teacher asks other children if one child has done something correctly.

Teacher asks a child what is wrong with something, how it is supposed to be.

Teacher asks a child what he is supposed to be doing, or what there is left to do.

Teacher has children check the room to see if anything is out of place.

Children are asked to inspect the others to see if their work is done, if they are clean, if their desks are neat, etc.

Teacher has child decide what belongs where, in putting things away.

Thinking, in a game, of something different to do from what is already done.

Deciding which box or paper, etc., belongs to which child.

Trying to put a wooden train together; putting puzzles together.

Figuring out for themselves how to set up a cot or folding table.

Working three or four puzzles at the same time, with all the pieces spread out at once.

Guessing who did something, the answer to something, what a story would be about, what sound they are hearing, what instrument is on the record, etc.

z. Following directions.

Teacher tells child to listen to directions before starting.

When assigning work, teacher tells children she is going to see how well they can follow directions, or makes a game of following directions.

Following directions for passing papers, getting materials ready, using workbooks, getting in line, putting things away, erasing the board, putting chairs into position, straightening up the room, doing seat work papers, playing a game, putting objects on a flannel board, pointing out a picture.

Following step by step directions for drawing a picture or pasting objects, as teacher demonstrates.

Following directions for getting a certain number and color object.

Teacher calls directions in a dance such as the Virginia Reel.

Following directions in practicing a show or entertainment.

Teacher gives rather tricky directions for finding something in the room as part of drill on following directions.

Following directions on a errand.

APPENDIX D

Sample of a Five Minute Observation Protocol

This sample protocol was taken from an observation made in a class of younger children. To preserve anonymity of the people involved, the children's names have been keyed to numbers as follows: 1, 2, 3, 4, 6, and 7--all boys, and 5--a girl. (Two children were absent on the day of the observation.)

Teacher said, "Yes, you can wipe off that table in just a minute. We don't have any paste jars this morning--or do we? (1), there's you one," and she puts a napkin in front of him.

She says, "I want you to fold these like that."

He says something about he can't do that, and teacher says, "Oh, yes, you can."

He says, "I want to pass the knives out," and she answers, "Well, you can pass the knives, too. We're going to all do this. I hope (1) can do it. I believe he can."

She stands up and says, "Alright, (2), you can come around to this side and (3) can fold some, too. Watch me. Look, watch my hand now. We'll do like that," and she reaches over for (1)'s napkin. "That's (1)'s. Here's you some. Make them all look like that," and they all start folding the napkins and she looks at (3) and says, "Now watch, (3). See how I fold it right to here."

(4) says something and she says, "Yes, you may fold some, too. Alright," and she hands him some and says, "You can sit right here by Mrs. (teacher)," and motions to a chair and he sits down.

She says, "Now, (4), I want you to watch carefully. You have to watch what your hands do. You have to look carefully." She shows him how to fold it and says, "See how to make that go right over there to the edge," and she folds the napkin for him. She looks across and (5) says something.

Teacher says, "(5), let's go to the bathroom and wash our hands. (5), you know that when we blow our nose, or have our hands on our shoes or in our mouth we have to wash our hands," and she nods at (4) and he makes a real big noise through his nose.

Teacher says, "Yes, it's when we do like that. You haven't done that today, have you, (4)? (5), let's go wash our hands and come back in."

(5) goes over and gets a drink.

Teacher looks down at what (4) is doing and says, "Alright, (3), let's fold it all the way over," as she looks across at what (3) is doing. She says, "That's it."

Little girl comes out of the bathroom and (4) says, "Hey-hey."

Teacher says, "Good, (4). It makes us proud when we do our job nicely. It makes us happy," and she nods her head emphatically at (8).

She looked down at (4) and said, "(4), let's fold one at a time. Let's just pick up one napkin," and she holds up one finger. She looks down as he folds one.

She says, "That's right," and she looked over at (1) and grinned at him and said, "I knew you could do it,(1)," and grinned at him.

She looks over at (3) and says, "Do you need some more?" and she nods her head and he nods his head yes, and she hands him some more napkins.

(4) calls for more and teacher says, "You need some more? Alright, but one at a time,(4)," and she holds up one finger.

A boy says something across the table and she says, "Okay, (2)," and smiles at him.

(3) says, "Where's our lunch?" and teacher says, "Well, it's almost time for lunch, but it's not quite time for lunch, (3). I believe (3) is getting hungry. Are you getting hungry, (3)?" and she grins at him and he grins back at her and nods his head.

Teacher said, "I hope we all eat our lunch. (7), I want you to be thinking about your lunch." She grins over at him and says, "(7), are you going to be hungry?"

(1) says something about the napkins and she says, "Why, (1), you're just the best worker."

(3) holds his up and teacher says, "Alright, (3), as they get through you may take the napkins up. Here's a couple right here that you can take care of. (4) is not quite through, are you. You're almost through."

She watches as (4) folds the napkin and says, "(4), look. Let's fold it all the way over," and she folds it over a little bit. "Watch your lines. See the edge of your napkin?" and she pats it down and points out the edge of the napkin and says, "Alright?" and she looks down at him as he starts to fold another one.

As he finished, he picked up the stack and looked at the teacher but she didn't say anything. She looks at (3), who said something, and said, "Well, he's not quite through. Just a minute. (3), let's don't put our hands all over the napkins like that."

(3) wants to take (4)'s and she grins as (4) puts his on top of the pile and she says, "Now, (3), we're going to save nine napkins for all the people in our room."

(3) tries to take some napkins from a boy and she says, "Let's be careful. (2), give them to (3)."

Teacher looks over at (5) and says, "(5), don't put them on your mouth."

REFERENCES

(1) Aldrich, C. G., & Doll, E. A.: "Problem Solving Among Idiots", *Jr. Compar. Psychol.* 12, no. 2. Aug., 1931, pp. 137-169.

(2) Anderson, H. M.: "A Study of Certain Criteria of Teaching Effectiveness", *Jr. Exper. Ed.* 23, no. 1. Sept., 1954, pp. 41-71.

(3) Barker, R. G., & Wright, H. F.: *Midwest and Its Children*. Evanston, Ill.: Row Peterson & Co., 1957.

(4) Barr, A. S., Eustice, D. E., & Noe, E. J.: "The Measurement and Prediction of Teacher Efficiency", *Rev. of Ed. Res.* 25, no. 3. June, 1955, pp. 261-269.

(5) Barr, A. S., Bechdolt, B. V., Gage, N. L., Orleans, J. S., Pace, R. C., Remmers, H. H., Ryans, D. G.: "Second Report of the Committee on Criteria of Teacher Effectiveness", *Jr. Ed. Res.* 46, no. 9. May, 1953, pp. 641-658.

(6) Boggs, E. M.: "Day Classes for Severely Retarded Children", *Amer. Jr. Ment. Defic.* 58, no. 3. Jan., 1954, pp. 357-370.

(7) Cleverdon, D., & Rosenzweig, L. E.: "A Work-Play Program for the Trainable Mental Deficient", *Amer. Jr. Ment. Defic.* 60, no. 1. July, 1955, pp. 56-70.

(8) Cogan, M. L., "Theory and Design of a Study of Teacher-Pupil Interaction", *Harvard Ed.Rev.*26, no. 4, Fall, 1956, pp. 315-342.

(9) *Curriculum Materials for the Severely Mentally Retarded*. San Francisco Unified School District, Atypical Department, Child Welfare Division, 1956.

(10) Delp, H. A., & Lorenz, M.: "Follow-up of 84 Public School Special Class Pupils with I. Q.'s Below 50", *Amer. Jr. Ment. Defic.* 58, no. 1, July 1953, pp. 175-182.

(11) Doll, E. A., & Aldrich, C. G.: "Simple Conditioning as a Method of Studying Sensory Discrimination Among Idiots", *Jr. Gen. Psychol.* 7, no. 1. July, 1932.

(12) Fils, D. H.; *A Pilot Study of a Public School Educational and Training Program for Children Who are Severely Retarded*. Office of the County Superintendent of Schools, Division of Research and Guidance, Los Angeles County, California, 1955.

(13) Fils, D. H., & McAdoo, I.: *The Education and Training of Severely Mentally Retarded Children in Special Training Classes*. Office of Los Angeles County Superintendent of Schools, Division of Research and Guidance, 1954.

(14) Gardner, W. I.: *Reactions of Intellectually Normal and Retarded Boys After Experimentally Induced Failure: A Social Learning Theory Interpretation*. Unpublished Ph. D. Dissertation, George Peabody College for Teachers, 1958.

(15) Garrett, H. E.: *Statistics in Psychology and Education*. New York: Longmans, Green & Co., 1947.

(16) Goldberg, I. I.: "Current Status of Education and Training in the U. S. for Trainable Mentally Retarded Children", *Exceptional Children*, 24, no. 4. Dec., 1957, pp. 146-154.

(17) Goldstein, H.: *Report No. 2 on Study Projects for Trainable Mentally Handicapped Children*. Springfield, Ill.: Vernon L. Nickell, Superintendent of Public Instruction, 1956.

(18) Gordon, S., O'Connor, N., & Tizard, J.: "Some Effects of Incentives on the Performance of Imbeciles on a Repetitive Task", *Amer. Jr. Ment. Defic.* 60, no. 2. Oct., 1955, pp. 371-377.

(19) Guenther, R.: *Final Report of the Michigan Demonstration Research Project*. Lansing, Mich.: State Department of Public Instruction, August, 1956.

(20) Hanawalt, E.: "Shall We Rate or Evaluate Teaching?" *Wis. Jr. of Ed.* 89, no. 9. May, 1957, pp. 5-7.

(21) Hottel, J. V.: *An Evaluation of the Tennessee Day Class Program for Severely Mentally Retarded (Trainable) Children*. Nashville, Tenn.: Tennessee State Department of Education, 1958.

(22) *The Illinois Plan for Special Education of Exceptional Children. A Curriculum Guide for Teachers of Trainable Mentally Handicrpped Children*. Chicago: The Illinois Council for Retarded Children, 343 South Dearborn, Chicago 4, Ill., 1955.

(23) Jewell, A. A.: "A Follow-up Study of 190 Mentally Deficient Children Excluded Because of Low Mentality from the Public Schools of the District of Columbia, Divisions I - IX, Sept., 1929 to Feb. 11, 1940", *Amer. Jr. Ment. Defic.* 45, no. 3. Jan., 1941, pp. 413-420.

(24) Johnson, G. O.: *Training Program for Severely Mentally Retarded Children*. Albany, New York: N. Y. State Interdepartmental Health Resources Board, 1958.

(25) Johnson, G. O., & Capobianco, R. J.: Research Project on Severely Retarded Children in N. Y. State. Albany, N. Y.: Interdepartmental Health Resources Board, State of N. Y., 1956.

(26) Lindquist, E. F.: Design & Analysis of Experiments in Psychology & Education. Boston: Houghton Mifflin, 1953.

(27) Lippitt, R., & White, R. K.: "The 'Social Climate' of Children's Groups", Child Behavior and Development. (Edited by Barker, R. G., Kounin, J. S., & Wright, H. F.) New York: McGraw-Hill Book Co., 1943, pp. 485-508.

(28) Loos, F. M., & Tizard, J.: "The Employment of Adult Imbeciles in A Hospital Workshop", Amer. Jr. Ment. Defic. 59, no. 3, Jan., 1955, pp. 395-403.

(29) Martin, B. W.: Teaching Extremely Retarded Children (Edited by Oswalt, E. R.) Kent, Ohio: Bulletin, Kent State University, 1955.

(30) Mitzel, H. E., & Rabinowitz, W.: "Assessing Social-Emotional Climate in the Classroom by Withall's Technique", Psych. Monographs, 67, no. 18, (whole no. 368), 1953.

(31) Rice, E. M.: A Follow-up Study of 50 Severely Mentally Retarded Children. Unpublished M. A. Thesis, San Francisco State College, 1954.

(32) Roewer, W. E.: "A Program for the Trainable Mentally Deficient Child", Amer. Jr. Ment. Defic. 56, no. 3. Jan., 1952, pp. 551-559.

(33) Rosenzweig, L.: "Report of a School Program for Trainable Mentally Retarded Children", Amer. Jr. Ment. Defic. 59, no. 2. Oct., 1954, pp. 181-205.

(34) Ryans, D. G.: "The Investigation of Teacher Characteristics", Ed. Record 34, no. 4. Oct., 1953, pp. 371-396.

(35) Saenger, G.: Adjustment of Severely Retarded Adults in the Community. Albany, New York: N. Y. State Interdepartmental Health Resources Board, 1957.

(36) Siegel, S.: Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill, 1956.

(37) A Syllabus on a Curriculum for the Retarded Child. (By the Staff of PARC Training School for Retarded Children.) Philadelphia: PARC Training School, 1440 North Broad Street, Philadelphia 21, Pa.

(38) Thompson, W. H.: "A Follow-up of 104 Children Excluded from Special Rooms Because of Low Intelligence Ratings", *Amer. Jr. Ment. Defic*. 46, no. 2. Oct., 1941, pp. 241-244.

(39) Tryon, R. C.: *Cluster Analysis: Correlation Profile & Orthometric (Factor) Analysis for the Isolation of Unities in Mind and Personality*. Ann Arbor: Edwards Bros., 1939.

(40) Walker, H. M., & Lev, J.: *Elementary Statistical Methods*. (Revised Edition) New York: Henry Holt & Co., Inc., 1958.

(41) Wandt, E., & Ostreicher, L. M.: "Validity of Sample of Classroom Behavior for the Measurement of Social-Emotional Climate", *Psych. Monographs*. 68, no. 5. (whole no. 376), 1954.